

American Gas *Association* MONTHLY

Research Points Way for Gas

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Blueprint for Post-War Era

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Study Gum Protective Devices

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British Gas Industry at War

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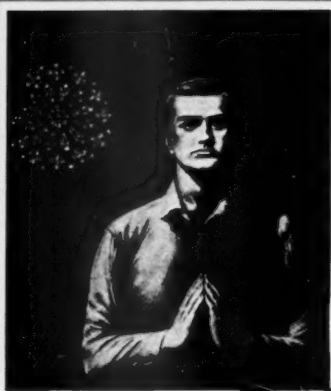
Engineers and Chemists Meet

July-August



1943

VOLUME XXV NUMBERS 7 AND 8



"The FULL development of Individual Personality"

...a 6 point post-war program by The Association of Commissioners

For that it is not an accident that the American Insurance industry is the most successful in the world. It is the result of the fact that the industry has been able to develop the full personality of its members. This is the result of the fact that the industry has been able to develop the full personality of its members. This is the result of the fact that the industry has been able to develop the full personality of its members.

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McCann-Erickson

Wings over the WORLD

PAN AMERICAN CLIPPERS

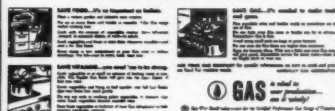
PREPARED BY J. WALTER THOMPSON COMPANY

"What else can I do to help?"



Of course, you are helping now! Buying War Bonds, working for the Red Cross, giving time to Civilian Defense. But there are other ways you can help—right in your daily household routine.

Today, your Gas Company suggests these four are really important:



GAS is vital to your home.

PREPARED BY McCANN-ERICKSON, INC.

Making the most of MEAT



PREPARED BY LEO BURNETT COMPANY, INC.

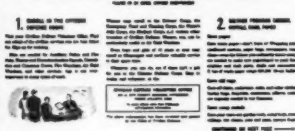
THIS ANSWERS YOUR QUESTION—

"WHAT CAN I DO TO HELP FIGHT THE WAR?"

There are many ways you can help fight the war. You can buy War Bonds, you can work for the War Production Board, you can conserve resources, you can help in many ways. You can help in many ways.



WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, PITTSBURGH, PA.



PREPARED BY YOUNG & RUBICAM, INC.

The U. S. A. needs more ads like these

SINCE DECEMBER 7, 1941, there have been a great many war advertisements published in our magazines and newspapers.

Some have unquestionably been good—helpful to the people, to the government, and to the firms that ran them. Some have been just as unquestionably bad.

On this page we are showing four of the good ones. We shall continue to show more of them in the months to come.

Now, when it comes to picking a good war advertisement from a bad one, personal opinion enters in. In order not to have these pages reflect only what we at Young & Rubicam think are good war advertisements, we asked for the

judgment of people whose opinion we believe counts most.

We went to the Office of War Information, the War Production Board, the Office of Civilian Defense... to the Department of Agriculture, Commerce, and the Treasury... to the Red Cross... and to the Advertising Council.

The advertisements selected were voted to be effective war advertisements by the groups concerned. Each advertisement made a contribution to the war. It did a job the government wanted done and followed out government policy, not private policy, in doing it. It was liked and responded to by the people who read it.

Advertisement No. 1 was prepared by J.

Walter Thompson, New York, for Pan American Airways; No. 2 by McCann-Erickson, New York, for the American Gas Association; No. 3 by Leo Burnett, Chicago, for the American Meat Institute; and No. 4 by ourselves for the Westinghouse Electric & Manufacturing Co.

It is our belief that more advertising can do a real job during the war. And we are publishing these examples of helpful war ads in the hope that they will stimulate the preparation and publication of many more advertisements that are equally helpful.

Young & Rubicam, Inc. ADVERTISING
New York • Chicago • Detroit • San Francisco
Hollywood • Montreal • Toronto

The gas industry's national ad "What Else Can I Do To Help" published in April and May magazines and reproduced above is one of the most effective ads contributing to the war, in the opinion of certain groups approached by Young and Rubicam, Inc., advertising agency. This advertisement will appear in the August issue of Fortune and five advertising magazines issued that month. Recently, another gas industry national ad "Thanks Mom" was selected by O.W.I. and the Advertising Council as one of the fifty ads best promoting the civilian war effort of America.



CONTENTS FOR JULY-AUGUST 1943



There is no pleasure driving in the gas industry these days—it is all business, and mostly war-slanted at that. . . . Take, for example, the material published at the two A. G. A. conferences represented in this issue: The production and chemical men had their eyes glued on technical problems related to the war effort and the accountants were occupied with such serious wartime matters as the effect of a lengthened work schedule and the problems encountered in bi-monthly and quarterly meter reading and billing. . . . Two samples from the production conference, Mr. Beale's account of British war experience and our Laboratories' report on gum protective devices, are valuable contributions to the gas industry. . . . For those who would dispel the post-war fog, there is comfort and much food for thought in this issue: Comfort in the industry's enlarged research program announced herein, and in the highly commendable progress of the post-war planners under A. G. A. Chairman Beebee; food for thought in Mr. Hirose's analysis of the post-war market. . . . And, don't forget to take a good look at that fine group of men who will be at the A. G. A. belm in the stormy war year ahead. Happy vacationing!

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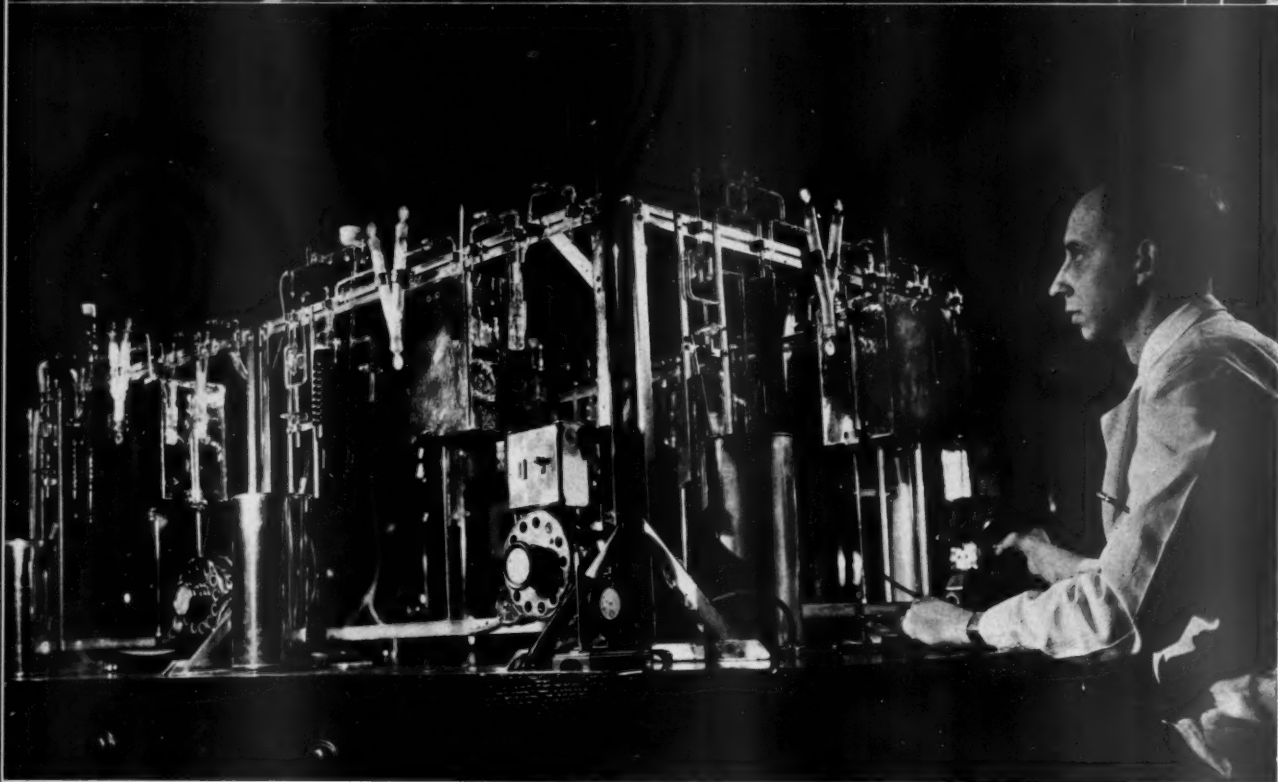
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AMERIGAS, NEW YORK
American Gas Association Testing Laboratories
AMERIGASLAB, CLEVELAND



The gas flame of research burns brightly in the American Gas Association Laboratories



JAMES M. BEALL, *Editor*

ALL THE LIGHTS HAVE NOT GONE OUT

In thousands of laboratories . . . despite the national emergency . . . men work on with the pale flame of the Bunsen burner. For this is the lamp of research that lights our road and lightens our load. Knowing there will always be a tomorrow, the men with the burner keep looking for better ways of alloying steel, better ways of baking bread, better ways of making dyes, better ways of doing everything.

By EUGENE D. MILENER, *American Gas Association*



THIS tribute to the gas burner as the symbol of progressive research was printed in business magazine advertisements by Keasbey & Mattison Company of Ambler, Pennsylvania, well known makers of asbestos who, after seventy years of leadership, are depending largely upon research for continued progress in their field.

Just as the Bunsen burner is recognized as the symbol of research by other progressive industries, it has always been the guiding light for research in the industry that first produced it and which now uses its basic principles in hundreds of different forms and in thousands of different applications. All the lights have indeed not gone out in the laboratories of the gas industry. In all branches of the business much constructive thought and effort are being given to research and the part it can play in the post-war development of the gas business.

Leadership in gas utilization research is provided by the American Gas Association through its continuing programs of domestic and industrial research. These are sound programs based on studies by and consultations with many leaders of the industry, both executive and technical, whose experience and judgment form the basis of every individual project undertaken. These men represent a true cross-section of the gas utility and appliance industries, and their active participation in the work is a guarantee that the projects selected and the nature of the research done is truly representative of the best needs of the entire industry.

Indicative of the resurging spirit of research which characterizes the gas industry today is the recent action of the

Executive Board in greatly expanding the Association's program of fundamental research in the utilization of gas for domestic purposes. As announced last month by Everett J. Boothby, chairman of the Committee on Domestic Gas Research, portions of research projects under way for some time are being revamped and speeded up. In addition, other portions of these research projects are rapidly being brought to the point where intensive laboratory work can be undertaken at the earliest possible moment.

This enlarged domestic gas research program is designed to overcome fundamental technical problems that limit the optimum application of gas in the home, and to provide the soundest possible technical foundation on which gas appliances of the future will be designed and built. These fundamentals consist of improved and new methods of combustion as well as methods of transmitting heat to cooking vessels, to water for domestic service and to steam, water and air for house heating systems. Also embraced in the new program are studies of ignition methods, heat distribution, venting, etc., and the elimination of all noises of combustion, as well as other noises in appliances.

The basic conception of A. G. A. domestic gas research has been developed by the Research Committee over a period of several years through the assistance of a Technical Advisory Committee for each of the basic projects. These advisory committees are composed of utility and appliance manufacturing engineers and executives. From this basic conception has been developed comprehensive detailed working outlines for each section of projects in cooking, water



What will automatic ignition and control devices look like in the future? Contemporary safety ignition devices are shown above

heating, central space heating, direct space heating and atmospheric burners.

Under the new authority granted by the Executive Board the cooking, water heating, central space heating and atmospheric burner research projects will be concentrated on for the balance of the year. This program is well advanced at the A. G. A. Laboratories where the following projects have been assigned: Domestic Gas Cooking Research; Domestic Gas Water Heating Research; Fundamentals of Atmospheric Gas Burner Design; Research in Central Gas Space Heating.

Already seven research bulletins have been completed and published in connection with this program: Domestic Gas Range Research (Bulletin No. 7); Domestic Gas Range Research (Bulletin No. 8); Fundamentals of Domestic Gas Water Heating (Bulletin



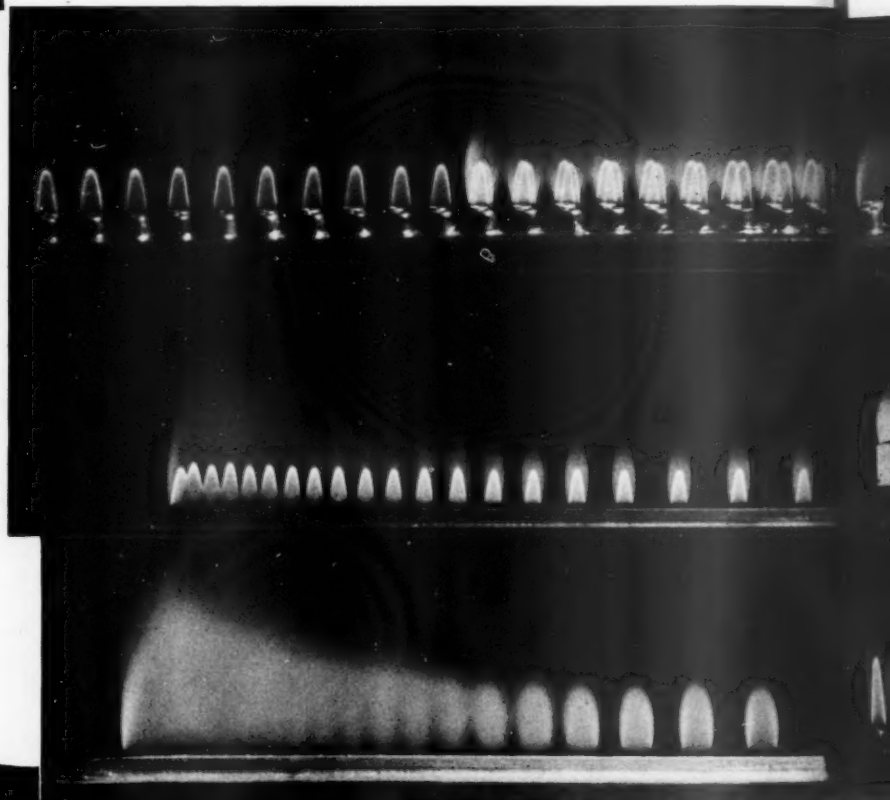
E. J. Boothby, Chairman, Committee on Domestic Gas Research



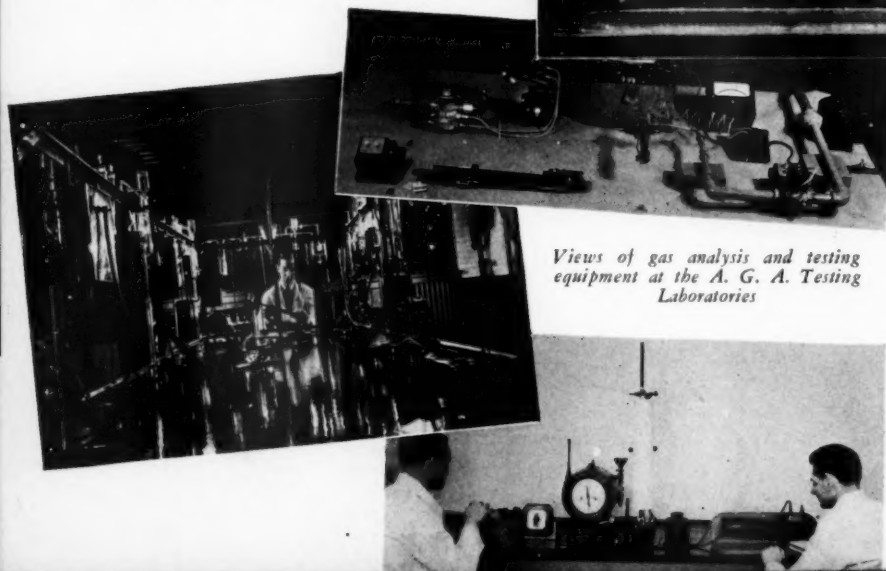
John W. Batten, Chairman, Committee on Industrial Gas Research

tin No. 9); Research in Fundamentals of Atmospheric Gas Burner Design (Bulletin No. 10); Principles of Gas Storage Water Heater Design for Maximum Hot Water Delivery (Bulletin No. 12); Fundamentals of Design of Atmospheric Gas Burner Ports (Bulletin No. 13); Fundamentals of Automatic Flash Tube Lighter Design (Bulletin No. 14).

A large amount of completed laboratory research work is now being analyzed and reviewed carefully by the



The gas flame—basic tool of the industry in the development of atmospheric gas burners, shown in effect



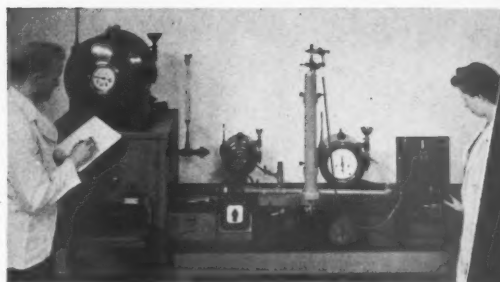
Views of gas analysis and testing equipment at the A. G. A. Testing Laboratories

Laboratories' staff, the Technical Advisory Committee and the Committee on Domestic Gas Research. As this completed work clears through these various steps, additional research bulletins will be published as rapidly as possible. Under the accelerated pace of the program the number of such bulletins and reports will increase considerably.

There have been advanced many ideas for post-war domestic gas appli-

ances. Some of these are of a nature that they can be applied by manufacturers immediately, if it can be shown that a market exists for them. Other ideas that have been advanced depend for fruition upon the successful development of certain definite, fundamental, technical facts. These bottlenecks when broken will automatically open up large fields of applied research, advanced development, and the application of ingenious and novel ideas.

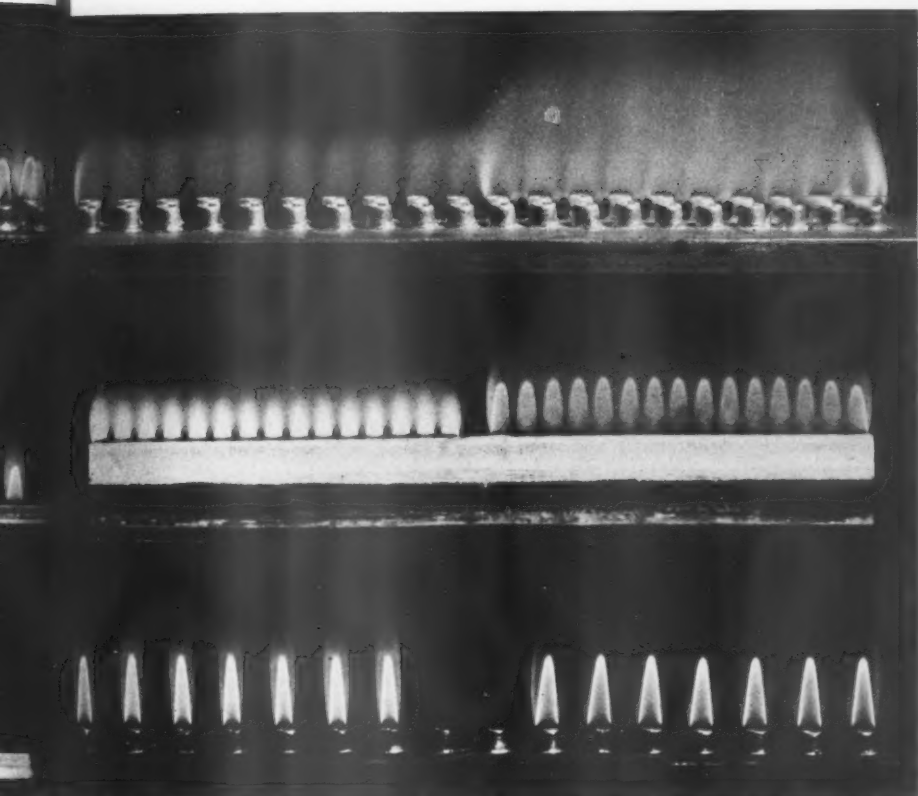
The working outlines of this do-



Flash tube ignition research at the A. G. A. Laboratories. Above right is experimental rig showing extent to which flame will run "downhill"



Summer air conditioning research group taking readings at the A. G. A. Laboratories



industrial the research worker sees it. These flame pictures, taken in connection with the A. G. A. study of at-show effect of port spacing, lifting of flames, tendency to yellow-tip, to flow, and other factors

mestic research program have been laid out in detail for a period extending more than a year beyond the actual current laboratory work. These are changed from time to time by the Research Committee as work advances, the changes made being largely the results of continuing studies by the individual Technical Advisory Committees.

Members of the Committee on Domestic Gas Research in addition to

Chairman Boothby are: F. M. Banks, Vice-Chairman, Los Angeles, Calif.; Frank H. Adams, Toledo, Ohio; R. G. Barnett, Portland, Oregon; W. E. Derwent, Rockford, Ill.; R. L. Fletcher, Providence, R. I.; Henry O. Loebell, New York, N. Y.; Christy Payne, Jr., Pittsburgh, Pa.; J. J. Quinn, Boston, Mass.; H. P. J. Steinmetz, Newark, N. J.; Charles H. Wiley, St. Louis, Mo.; W. F. Wright, Dallas, Texas.

Industrial Gas Research

Another example of the new tempo in gas research is the program involving high-speed, direct gas-fired industrial heating authorized by the Executive Board and announced last month by John W. Batten, chairman of the Committee on Industrial Gas Research. The forty-eighth such project sponsored by this committee, the latest undertaking calls for the investigation

The final product—how does it taste? Research worker checking fine qualities of various foods cooked in modern gas range



and development of the possibilities inherent in heating steel and other materials with gas at speeds heretofore unattainable.

The field of fuel application has always been a fertile one for research and the reasoning behind the latest effort is typical of other A. G. A. projects. It started when recent developments in the metallurgical field caused some heating practices of long standing to be questioned. Among them were the rates at which metals could absorb heat and the practical value of the customary "soaking period." Many advanced thinkers believe that long-established heating cycles can be greatly reduced in time with important metallurgical and economic benefits, subject only to the ability to force heat into the materials at accelerated rates.

To the extent that the above is true, many heat-treating cycles can be cut from customary extended lengths of time down to a matter of a few minutes. The complete change in heating cycles, it is believed, will overcome a number of distinct metallurgical disadvantages.

High Speed, Direct Heating

Preliminary work in laboratories and in a number of mass production factories indicate that gas has great possibilities in the field of high speed, direct heating. Enthusiasts think this will be the next great movement in industrial gas heating, comparable with the introduction of mechanical furnaces, circulating air heaters, radiant tube heating, etc.

The general objectives of the project have been set forth as follows: To establish the effects of high-speed, direct heating with modern gas-air combustion on the metallurgical, working and production properties of ferrous and non-ferrous metals (both standard and national emergency types) as heated for forging, normalizing, annealing, hardening, drawing, rolling, extruding, etc. To compare these effects with the corresponding effects of conventional furnace heating and of other methods of high-speed heating such as electric induction and oxy-acetylene—and to study their relative merits.

The Committee on Industrial Gas Research has assigned this new research

project to the engineering laboratories of The Sels Company, Philadelphia, Pa. Details are being handled by a subcommittee composed of J. P. Leinroth, Charles C. Krausse, Charles R. Bellamy, F. W. Marklin, and Eugene D. Milener. Work on the project will begin immediately.

Active Projects

Other active projects being sponsored by this committee are: "Improvements in Non-Ferrous Metal Melting Through the Application of Direct Radiant Gas Heat"; "Development of Stationary Gas Counter Toasters"; and "Research in Gas Immersion Tube Heater Design and Operation." An illustrated paper describing some of the recent work done on the latter project at the A. G. A. Laboratories appeared in the last issue of the MONTHLY.

Members of the Committee on Industrial Gas Research are: Chairman Batten; Charles R. Bellamy, New York, N. Y.; Charles C. Krausse, Baltimore, Md.; J. P. Leinroth, Newark, N. J.; E. J. Meade, Atlanta, Ga.; George M. Parker, St. Louis, Mo.; Elmer F. Schmidt, Dallas, Texas; Eugene D. Milener, Secretary, New York.

To Organize A. G. A. Annual Meeting

HARRY K. WRENCH, President of the Minneapolis Gas Light



Harry K. Wrench

Company, has accepted appointment by President Bridge as Chairman of the General Sessions Program Committee for the Annual Meeting of the American Gas Association which will be held at the Jefferson Hotel in St. Louis, October 11, 12 and 13.

The Section program committees have begun the work of arranging the programs for the meeting times which have been allotted to them.

It is expected that only subjects directly relating to the war or to the immediate post-war period will be discussed at any of the meetings.

Air Conditioning Research

American Gas Association research has also made itself felt in summer air conditioning where gas has been an important factor since the first attempts were made to develop methods in this enticing field. The pioneer and follow-up work done in the dehydration phase of summer air conditioning has been an important factor in making the industry a successful leader in that important and growing field for industrial air conditioning and large comfort installations. This research work is still continuing in cooperation with the manufacturers who are now making the equipment.

Latterly particular emphasis has been directed toward the year-round gas-operated air conditioner that has been developed and field tested by Servel, Inc. For two years A. G. A. research directors have been working closely with Servel engineers to perfect many of the technical phases involved in this new gas equipment.

This development, which is now ready to be launched on a full scale commercial basis, is one that the gas industry can take particular pride in, because it means that within the industry has been developed the first and only machine that will condition air both in the summer and in the winter.

A preliminary bulletin on A. G. A. Summer Air Conditioning Research is due for publication this month. This non-technical bulletin is of particular interest to executives and sales managers of gas companies and others who are concerned with the over-all picture of gas summer air conditioning. The larger and technically documented air conditioning Research Bulletin will be completed by the Laboratories this summer and published in September.

There are other noteworthy A. G. A. research activities, such as the work on gum protective devices described by Dr. Vandaveer elsewhere in this issue, but they only serve to emphasize that "all the lights have not gone out" in the gas industry. New horizons are being opened up for our industry because of the vigorous research program now under way.

This is your war. Fight it constantly by purchasing all the War Bonds you think you can and then buy some more.

Blueprint for Gas . . . in Post-War Era Is Aim of Farsighted Planning Committee



A. M. Beebe

THE word "Post-War" has become so common and so frequently related to subjects that are difficult of visualization, that many are apt to pass it by with a shrug of the shoulder. Yet it is a

very vital subject and the more one studies it, the more convinced one becomes that it is capable of supplying data of real value and is decidedly worthwhile.

The amount of material that one sees on the subject of Post-War Planning is so great that it sometimes seems overwhelming and confusing. On the other hand, failure to study this subject is apt to find us in the post-war period in an unprepared condition similar to our unpreparedness for war at the beginning of the war.

However, at the present time, we are in a position to briefly outline the present status of the studies which we call our four main building blocks as outlined in the April A. G. A. MONTHLY, Page 158.

(a) Post-War Purchasing Power and Potential Markets.

By C. V. Sorenson, *Chairman*
Northern Indiana Public Service
Co., Hammond, Ind.

This phase of our activity will attempt to develop the changes that have taken place in the potential purchasing power, spendable income, shifts in population, consumers' preferences and types of housing construction as a result of the war, so as to enable a forecast to be reasonably made as to the markets that lie ahead for gas consuming appli-

By A. M. BEEBEE*

Chairman, Post-War Planning Committee American Gas Association

ances, neglecting competitive factors. In other words, this activity is the advance guard out ahead of the front lines, seeing what lies ahead.

It is not necessary to emphasize that there have been great changes in the location of spendable income and purchasing power in this country and the fact that its present location may have a surprisingly low saturation of appli-



ances can develop tremendous potential markets.

The Subcommittee on Post-War Purchasing Power and Potential Markets have resolved their studies into the following subjects:

- I. Probable Business Conditions in the Post-War Period.
- II. Post-War Spendable Income.
- III. Shifts in Population and the Effect on Markets.
- IV. Probable Post-War Home Building.
- V. Post-War Markets.
- VI. Customer Preference.

This subcommittee has undertaken the task of analyzing a mass of data which is available from authoritative sources on probable post-war economic

levels. It has been necessary to separate long range political ideals from practical problems which will directly affect post-war markets. The principal advantage of this phase of the work will be to present the foregoing information on a national level in such a manner as to permit its use at an industry or company level without the necessity of a vast duplication of work and study. It is intended that a bibliography will be included in the final report which will be of help to the companies that may care to investigate this phase of the subject more fully.

It is generally conceded that post-war income levels will have a very important effect on markets because of the unsatisfied desires of those wage earners who move into higher income brackets. A vast accumulation of war bonds estimated to be in excess of \$24,000,000,000 will constitute a reservoir of spending power for post-war goods. To this can be added approximately \$10,000,000,000 of consumer installment credit which has been liquidated since September 1941. Studies by various authorities indicate that median incomes have increased approximately \$700 per year between 1936 and 1942 and, at the present time, there are approximately 20,000,000 consumer units in the country with increased optional spending power of \$1,100 per year. The United States Department of Commerce has estimated that in the twelve-year period from 1929 to 1940 consumer expenditures were 91 per cent of disposable income and probably will return to that ratio when goods are again available.

Shifts in population will directly affect post-war markets in a great many areas throughout the country. A very complete statement of this problem was contained in the article by Philip M. Hauser of the Bureau of Census in the

* General Superintendent, Rochester Gas and Electric Corp., Rochester, N. Y.

Mock-Up of the Future*

TODAY, thousands of manufacturers, in the rare minutes that they can spare from the pressure of war production, are reviewing their prewar products critically. Out of this thinking there is bound to come a great reshuffling of business. Some who never made ranges are now considering that field because they have learned much about the metal-stamping art in some phase of war production. A few of these are excited by knowledge of that same insulating material, eight-fold better than we had before the war, that promises to revolutionize the refrigeration industry. They see how this can be made to revolutionize stove manufacturing.

Before the war you could buy a Swedish cookstove that was extraordinarily economical in its use of fuel. Insulated and thermostatically controlled, it required scarcely more than a shovelful of coal a day. It was no bigger than an ordinary kitchen range, but it was fantastically expensive for an ordinary household. However, a restaurant man who bought one at \$750 could expect to recover that cost in a few years through the saving in fuel. Now at least half a dozen manufacturers are calculating the size of the market for such a stove to be sold at a cost no greater than an ordinary gas range. Men are at work trying to redesign this type of stove for use with gas. Mock-ups exist. For the consumers these mock-ups are a tantalizing promise of a lower living cost after the war.

*From Boyden Sparkes' article under this title in the June 26 *Saturday Evening Post*.

March issue of the AMERICAN GAS ASSOCIATION MONTHLY.

The home-building program in the post-war period will be an important phase of the post-war marketing problem facing the gas industry. Here again, a great deal of material on this subject is being examined and will be condensed for quick reference. Authorities agree generally that there is a large potential demand for housing and differ only as to its size, although it is pointed out that a cessation of building does not necessarily create a deferred housing demand. Demand exists if people have purchasing power and this fact ties in directly with probable economic level referred to in the first part of the study.

Conservative estimates seem to place the number of new homes to be built at approximately 1,000,000 per year for a 10-year period, and in arriving at these figures consideration has been given to the small number of homes built in the 10 years prior to the war, to the demand created by the formation of new families, to the demand for better housing created by higher income levels, and the need for replacement of obsolete housing. One authority estimates that \$1,750 annual earnings will permit a \$3,500 home without subsidy and that a \$109,000,000,000 national income level would move 6,738,000 consumer units above the \$1,750 per year class.

Post-war markets of the gas industry will be affected by several factors, namely:

- A. The replacement market for appliances which are wearing out and becoming obsolete and market surveys being made by individual gas companies will prove of inestimable value both to the gas company and the manufacturer.
- B. The market which new homes will create.
- C. The gas home heating market created by new home construction and also by an appreciation for gas heating which is being accelerated because of wartime fuel shortages. This committee can estimate the size of this market, but the individual company will have to determine how much gas home heating it wants.
- D. The improvement in living standards, made possible by higher income levels, will create vast new markets. Data has been collected showing the present distribution of gas appliances by income levels and, using this as a guide, it is possible to estimate the appliances that can be sold to consumer units with increased optional spending power.
- E. Through the Home Service Committee of the Association a considerable amount of data has been collected indicating the preference expressed by customers for certain types and styles of appliances. This information while not final and conclusive will give the gas industry and the appliance manufac-

turers some very helpful ideas about future customer demands.

(b) Factors Affecting the Realization of the Potential Markets.

R. J. Rutherford, *Chairman*
Worcester Gas Light Co.
Worcester, Mass.

R. E. Ginna
Rochester Gas and Electric Corp.
Rochester, N. Y.

This phase of the committee actively will study the development of competitive factors that may prevent us from, and also may aid us in, achieving the potential market developed by Study "A." In other words, Mr. Rutherford's committee is our intelligence division trying to determine the strength and activity of the enemy.

The great changes which have taken place in the oil industry may be the means of placing on our door step loads requiring heat in a quantity undreamed of before. On the other hand, the competitive conditions which the electric industry may be in a position to throw into our basic market may likewise be tremendous and Mr. Ginna's committee is to study the economics and potential strength of that competition.

1. Summary of Competitive Factors.

By R. J. Rutherford.

This subcommittee has attempted to refine its problems into three groups, keeping in mind that each factor may be adverse or beneficial, and must be studied from this viewpoint. The three groups are:

Teamwork

AN outstanding feature of the Joint Production and Chemical Conference was the "Post-War Symposium" led by the chairman of the A. G. A. Committee on Post-War Planning, A. M. Beebe, and participated in by his "horsemen." This symposium proved to be a splendid example of teamwork by a group of enthusiastic, farsighted and capable gas-industry executives with a background of economic understanding that augurs well for the future of our industry. It would be difficult to compliment adequately this dynamic group for the work they are doing.—H. O. ANDREW in June 17 *Gas Age*.

- (1) Sales policies and practices of our own industry—past, present, planned.
- (2) Electric industry competition.
- (3) Other energy competition, namely, coal, oil and liquefied petroleum gases.

Some of the high spots of this subcommittee's activities might be of interest. The group studying sales policies and practices, has divided the problem into three time periods: present, one to two years after the war ends, and the years following this period. Under the present period, they recommend that each company analyze its past policies, plans and programs on sales, and thoroughly study them with the idea of revising, discarding or adding as necessary.

This group is interested in our industry arriving at basic policy commitments. It hopes to achieve unanimity of thought among the utilities, that they are willing to assume full responsibility for all load building and merchandising activities within the area they serve. It is felt that such a basic policy would not conflict with any of the successful plans of the past. They hope to set up the present thinking of all utilities and obtain information as to which of the four plans each utility will follow in Post-War. These plans are:

1. No interest in load building or merchandising activities.
2. Utility merchandising, but competitive operations with other outlets.
3. Utility merchandising but non-competitive cooperation with other outlets.
4. No utility merchandising but full cooperation and direction of other outlets.

It is apparent that the answer to this problem will be of immense interest and value to the manufacturer planning for Post-War. If he is able to count on utilities assuming responsibilities and direction, his problem is considerably simplified.

This group is also concerned with the present in formulating hiring and training programs of sales personnel. It is studying the possible effect on the post-war public demand of present vi-

sionary advertising done by various companies and publicized in various magazines.

For example, if the public mind is led to believe that immediately following the war, a lot of new gadgets of revolutionary designs are going to be made available, it will make going through the period of one or two years following the war, more difficult. Actually indications are that manufacturers will be fortunate to provide pre-war models, let alone revolutionary designs.

As to the future, this group is concerning itself with the probable ability or inability of ourselves and other outlets to meet post-war merchandising. It is also studying new methods of distribution that may arise such as credit unions, consumer movements, etc.

The third group of this subcommittee are concerned with keeping abreast of three forms of energy competitions: coal, oil, and liquefied petroleum goods.

The group is trying to keep abreast of such developments so that their effect may be studied as they relate to our industry. The coal situation is being followed, although with an apparent supply variously estimated between 1500 and 3000 years, it does not require much following. The coal in-

dustry, however, is hard at work on post-war planning. Stoker research is progressing. If the oil industry does vacate the domestic heating market in post-war, then the coal industry and ourselves are certainly going to be concerned and their plans are going to be of interest to us.

As to liquefied petroleum gases, little can be compiled because of their close tie-in with all factors affecting the oil picture.

2. Summary of Electric Competitive Factors.

By R. E. Ginna.

(EDITOR'S NOTE—Since Mr. Ginna's excellent summary has already been published in the June 17 "Gas Age," page 17, in the interest of conserving much-needed space, it will not be repeated here.)

(c) Engineering and Economic Aspects of Our Own Ability To Satisfy the Potential Market.

Hall M. Henry, *Chairman*
New England Gas & Electric Service Corp.
Cambridge, Mass.

This phase of our program will be given over to a study of the economic factors which we have definitely in our

Despite their concentration on vital war work, progressive manufacturers are developing models of post-war products. Here Servel engineers examine "mock-ups" of gas-burning appliances for the future. Left to right: Dr. William R. Hainsworth, vice-president, Servel, Inc.; Lurelle Guild, designer; Dr. R. S. Taylor, chief engineer. (Photo by Rudolph Hindemith)



favor to enable us to overcome the enemy, as well as to study the weak points in our defense. In other words, Mr. Henry is our General in charge of these factors which supervise the bringing up of supplies and passing the ammunition.

The summary of this activity is given below by Mr. Henry:

Economics of House Heating

One of the assignments is to determine the economics of house heating and to include in this study production costs as well as the possibilities of using medium pressure distribution system versus low pressure system. This study will be undertaken by the Market and Economic Research Committee, Economics of House Heating Subcommittee, headed by H. O. Loe-bell.

It is expected that this report will be completed in the near future and made available to the industry.

Main Extension Policy

It is the intention of the Subcommittee on Engineering and Economics of our Industry to study main extension policies from the standpoint of the economics of making these extensions. This study will be undertaken by Mr. Ginna.

No outline is available at this time on this phase of the committee's work but as one is developed it will be announced.

Distribution Studies

The following indicates the general program of studies and activities to be undertaken by the subcommittee:

1. Is there any one best (most economic) gas distribution system?
 - a. Low Pressure
 - b. Medium Pressure (5 pounds)
 - c. High Pressure
- Note: What are the factors which will make one system more economical than another?
2. What economies (if any) can be realized by dehydration of gas?
 - a. Labor costs
 1. Pumping drips
 2. Service complaints
 3. Diaphragm trouble
 - b. Cost of laying mains
 1. Can they be laid at shallower depth?

One writer claims costs 1.1 cents per M cu.ft. to dehydrate but can save 2

cents per M cu.ft. Another claims costs only ½ cent per M cu.ft. to dehydrate. Just what are the factors that go into the cost of dehydration?

3. Study several typical distribution systems.
 - a. Companies with 10,000 meters; 50,000 meters; 100,000 meters; over 500,000 meters. (Or any grouping of meter sizes that the committee would consider best).
 - b. To determine what changes can be made to obtain the greatest carrying capacity with least incremental costs.
 - (a) Additional feeder mains
 - (b) Convert to medium pressure system
 - (c) Convert to high pressure system
 - (d) District holders
 1. Low pressure
 2. High pressure
4. What are plastic pipes? For
 - a. Distribution
 - b. Service
 - c. House piping

Give advantages—first costs and maintenance costs.

5. What problems would be raised by distributing a methane oxygen mixture—say 80% methane—20% oxygen?
 - a. Corrosions
 - b. Efficiencies

We understand this mixture is not explosive at ordinary pressures.
6. Effects of distributing high B.t.u. gas (800 to 1000 B.t.u.) versus low B.t.u. gas (500 to 600 B.t.u.)
 - a. Relative investment costs
 - b. Labor costs, etc.

Production Studies

The following indicates the general program of studies and activities to be undertaken on Production Costs by the Subcommittee:

A. Trends in Production Costs.

A study is to be made of production costs of a number of companies over a period of years to determine the general trends. The purpose is to determine whether or not any companies have found any methods or fuels which have resulted in lowering costs. The committee believes we ought to dis-

(Continued on page 329)

Our Greatest Post-War Opportunity



Alexander Forward

WITH eighty-three foremost American industries already organized and at work preparing their post-war developments, and with eighty-nine Government departments in Washington preparing post-war plans (or is it 189?) an industry that does not systematically and thoroughly get itself ready is digging its grave by inaction. The American Gas Association is fortunate in having a capable overall Committee on Post-War Planning, headed by Mr. Beebe of Rochester, with a number of subcommittees, analyzing every imaginable phase of our economy, our operations and our opportunities, and which will during the Summer that began early this morning, issue interim bulletins on our future. It is already largely responsible for the greatly enlarged program in domestic gas research for which financial provision has been made

by our Board.

Research is gas industry insurance for the future.

Servel has been a leader since it entered our industry with the gas refrigerator. This conference demonstrates that it is now a leader.

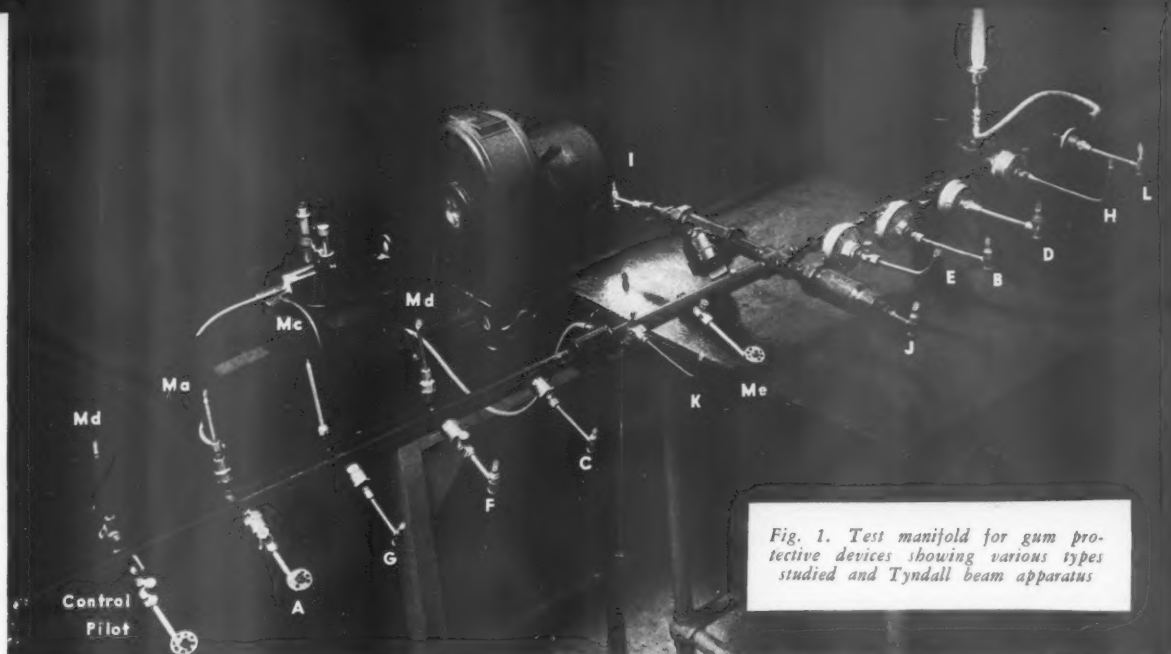
The most important development in the gas industry in the thirties was that gas refrigerator. It was worthy of note that the gas companies benefiting the most from the gas refrigerator were those who were most active in its early promotion.

The most important development for the gas industry in the forties will be air conditioning.

It gives us access to an enormous field for expansion. It brings to mankind unexampled advances in the comforts of living. It helps solve the post-war employment problem. It is our greatest opportunity.

Is it to be wondered at then that I am proud to have a part in this most significant development? In my opinion the executives of the industry will respond to this challenge and that we shall be ready, before the ink is dry on the armistice, to grasp the opportunity that awaits us.

—Alexander Forward, Managing Director, American Gas Association, at Servel All-Year Air Conditioning Conference, Chicago, June 30, 1943



Gum Protective Devices for Gas Appliances

By F. E. VANDAVEER and MILTON ZARE*

INTERFERENCE with the performance of gas appliances due to pilot outages, resulting from gum-forming constituents in manufactured gases has been recognized for many years. Papers on this subject by Ward, Jordan, and Fulweiler,¹ Perry,² Brady³ and others during the period of 1932 to 1935 not only indicated that gum was the source of much of the pilot troubles but explained how gum was formed. Although ways and means for correction of this difficulty had been discussed on many occasions by various American Gas Association groups, first official action was taken by our Approval Requirements Committee at its October 6, 1939 meeting.

At that time this problem was agreed to be of sufficient importance to warrant a special gas industry investigation, and a resolution to this effect was submitted to the Association's Executive Board. Shortly thereafter the

Gas Conditioning Committee of the Technical Section, to which the subject had been referred, passed a resolution, part of which is quoted below:

"RESOLVED, that it is the considered opinion of the 1940 Gas Conditioning Committee, that under the best current gas manufacturing opera-

tions, a certain percentage of pilot outages in automatic appliances may be experienced due to conditions not susceptible to control at the manufacturing plant. Accordingly, the committee strongly recommends that the American Gas Association, through the appropriate committees, go on record as requiring that all pilot-equipped appliances for manufactured gas contain, as a factory installed item, a suitable protective device against gum, dust and rust.

...

The Approval Requirements Committee later authorized a comprehensive investigation of this problem. The American Gas Association Testing Laboratories were instructed: (1) to determine the need for gum protective devices for use with constant burning pilots and possibility of making them mandatory on domestic gas appliances for manufactured gas, (2) to investigate ability of contemporary devices to accomplish this function, and (3) to prepare requirements and meth-



Fig. 2. Tyndall beam tester showing visibility of gum particles in gas stream through window of new observation cell (rectangular) in foreground

* American Gas Association Testing Laboratories.

Presented at A. G. A. Joint Production and Chemical Committee Conference, New York, N. Y., May 24-25, 1943.



Fig. 3. Apparatus for adding gum forming constituents (butadiene, nitric oxide and oxygen) to manufactured gas supplied to 40-cu.ft. aging tower (at left) where gum is formed. Gas containing gum is passed through gum protective devices on manifold

ods of test to determine acceptable devices with a view toward adoption of appropriate listing standards incorporating them. Research funds were provided in the Spring of 1942 and experimental work was started soon thereafter. This project is now nearly completed. Data obtained to date are summarized in this paper.

As a preliminary to undertaking research, available literature and minutes of interested committee meetings were studied, a conference was held with Dr. N. K. Chaney and others of The United Gas Improvement Company, and correspondence and discussions carried on with various manufactured gas companies and appliance manufacturers. It has been authoritatively demonstrated that pilot clogging

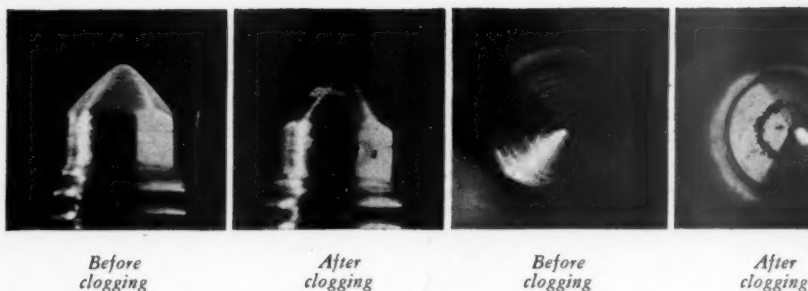


Fig. 4. Side and top views of Rutz lighter needle before and after complete clogging with gum

and outages in great numbers have been caused by vapor-phase gum in addition to dust, dirt, grease, sulfur and rust. Gum is the product of polymerization of gaseous constituents of manufactured gases which takes place in the storage and distribution system.

Such gum-forming constituents have always been present in manufactured gases. However, they were not recognized as a major problem until automatic ignition and control devices, employing small gas ways in needle valve pilots, became popular on domestic gas appliances. These small gas ways afforded a ready location for deposition of gum particles. For complete information on the origin and mechanism of formation of vapor-phase gum as well as methods developed for its control and elimination, reference should be made to available literature on this subject. The most prominent contributors in this field in addition to those previously mentioned are: A. R. Powell,⁴ W. L. Shively and E. V. Harlow,⁵ L. Shnidman,⁶ L. Shnidman and J. S. Yeaw,⁷ C. C. Winterstein and H. D. Lehman.⁸ Only those details relevant to the project assigned our or-

ganization will be discussed in this paper.

From an examination of hundreds of clogged needle valve pilots obtained from installations in the field, Messrs. Jordan, Ward and Fulweiler found that vapor-phase gum was a contributory cause of 86.8 per cent of such stoppages and the primary cause of 80.6 per cent. By chemical analyses and subsequent synthesis they discovered that the deposits encountered resulted from polymerization and oxidation of various compounds in fuel gases, principally unsaturated hydrocarbons generally designated as illuminants. This process was no doubt accelerated by oxides of nitrogen in the presence of oxygen, both of which are present in manufactured gases leaving the source of generation. These authorities also demonstrated that gum may be formed at irregular intervals without apparent change in normal manufacturing processes. This theory has also been substantiated by other investigators.

In preliminary phases of our investigation, necessity of having unsaturated hydrocarbons, oxides of nitrogen, and oxygen present in order to form vapor-phase gum was rather strikingly verified. Our manufactured test gas is produced by reforming natural gas. While it closely duplicates coke oven gas chemically, it contains relatively small amounts of illuminants, no oxides of nitrogen, and practically no oxygen. Addition of nitric oxide did not produce gum. Introduction of butadiene and nitric oxide produced traces of gum but too small an amount for our purpose. Adding oxygen as well as butadiene and nitric oxide gave copious quantities of vapor-phase gum. By varying the concentration of nitric oxide, gum particles causing clogging rates of needle valve pilots equal to

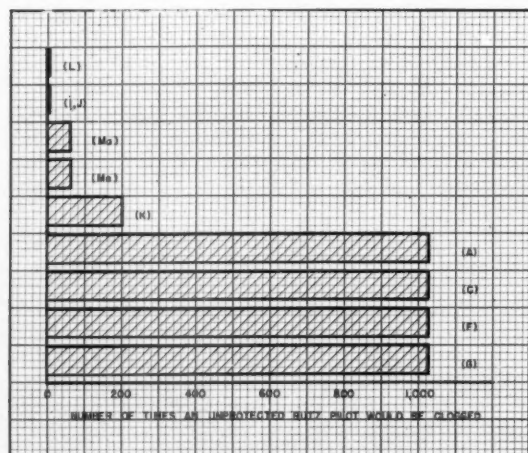


Fig. 5. Comparison of effectiveness of various gum protective devices to prevent pilot outage with an unprotected Rutz pilot operating on the same gas

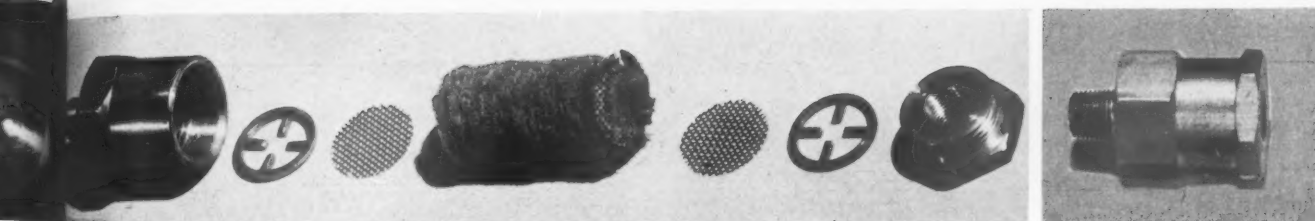


Fig. 6. Typical construction of pilot filters A, C, F, and G showing condition of interior after complete clogging with vapor-phase gum. Thin dark area on inlet (right) is gum deposit

or exceeding those reported from field experience were obtained.

Since it has been shown that formation of vapor-phase gum necessitates the presence of unsaturated hydrocarbons, oxides of nitrogen, and oxygen and a certain aging period for growth of particles, the problem of eliminating gum difficulties resolves into two

possibilities: (1) removal of one or more gum-forming constituents at the manufacturing plant or (2) removal of gum particles at the appliance before they enter a pilot or point of restricted flow where they will be deposited.

Two known methods are employed in this country for removing oxides

of nitrogen from manufactured gas. In the Ward-Jordan process nitric oxide reacts with fouled iron oxide. In the Koppers electrical precipitation process, nitric oxide is oxidized to nitrogen peroxide, which is then removed with sulfides in the gas. Published information indicates that gum service difficulties are substantially reduced by these processes. In his paper, Warren Churchill⁹ reports an efficiency of 91 per cent obtained with a newly installed Koppers Electric Gas Treater. Limitations of the fouled iron oxide process are discussed by Jordan, Ward and Fulweiler.¹ They point out, however, that nitric oxide in gums, deposited in gas distribution systems, may suddenly be released resulting in greater concentrations than observed at the plant. Under these circumstances it would appear to be desirable to supplement plant control with auxiliary gum protective devices at the appliances, if complete freedom from pilot outages is desired.

In order to determine whether temporary devices effectively remove gum and how long they will continue to do so, new samples of every known device were investigated. A number of units which had been in service from one to six years were also obtained. A brief description of the new units is

TABLE I
DESCRIPTION OF DEVICES DESIGNED TO PREVENT STOPPAGE OF SMALL GAS WAYS IN PILOT VALVES, THERMOSTATS, AND OTHER GAS APPLIANCE ACCESSORIES FROM VAPOR-PHASE GUM OR DUST AS EMPLOYED IN THIS INVESTIGATION

Manufacturer	Filter	Filtering Media	Manufacturers Capacity Cu.ft./Hr.	Remarks
1	A	Specially prepared mineral wool	0.75	(1) Designed mainly for range top burner pilots
	B	"	10.0	(2) For refrigerators, water heaters, etc.
2	C	"	0.75	(1)
	D	"	7.0	(2)
	E	"	10.0	(2)
3	F	"	0.75	(1)
4	G	"	0.75	(1)
	H	"	5.0	(2)
5	I	Wool felt	50.0	For dust protection, individual appliances
	J	"	160.0	For dust protection, house lines
6	K	Commercial glass wool	—	(1)
7	L	Wool felt	—	For dust protection, refrigerators
8	Ma	E. R. wool felt filter and thin plate orifice	Depends on fixed orifice	For range pilots, water heaters, refrigerators.
	b	"	"	" " " " " "
	c	Thin plate orifice	"	To replace pilot tips
	d	"	"	"
	e	"	"	To replace needle in Rutz lighters

Fig. 7. (Right) Construction of filter K showing uneven gum deposits on glass wool after complete clogging

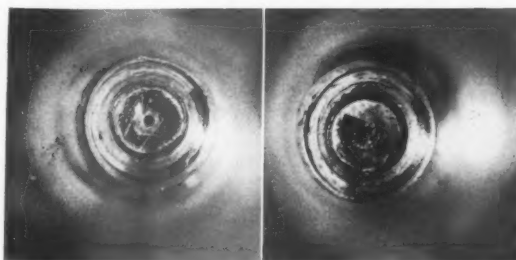
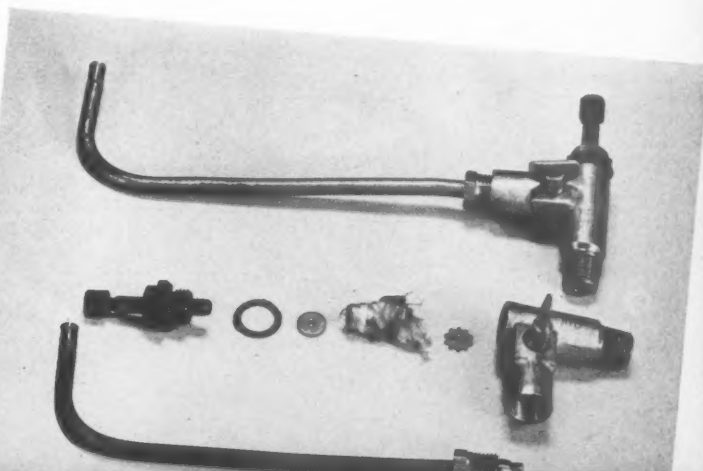


Fig. 8. Thin plate orifices "Ma" before and after complete closure by vapor-phase gum particles



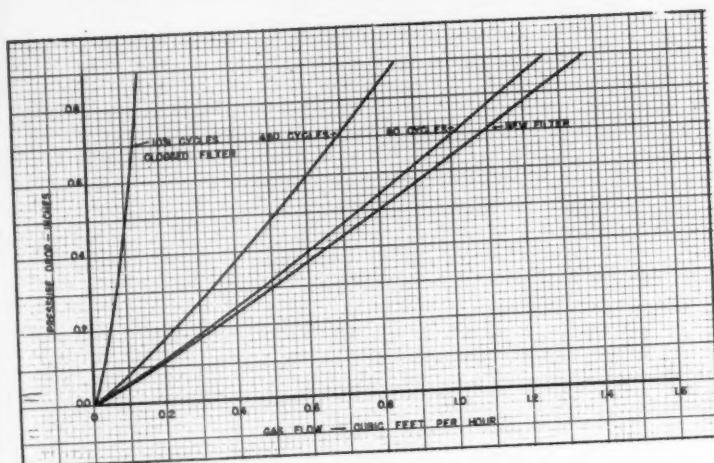


Fig. 9. Showing decreased gas flow resulting from saturating filter C with vapor phase gum particles

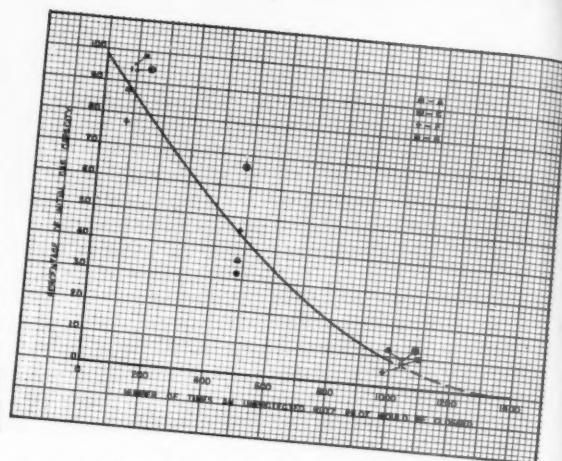


Fig. 10. Illustrating reduction in capacity of filters A, C, F and G with increase in number of unprotected pilot outages

presented in Table 1. They are shown connected to a gas manifold and pilots in Figure 1. Products of eight different manufacturers are represented. Fourteen of the seventeen units received were specifically designed to filter gum. The remaining three were designed primarily to remove dust particles and were included in this study for comparative purposes. The twenty-one used gum filters, which had provided satisfactory service on consumers' appliances for periods of from one to six years represented a wide range of capacities and application to all types of domestic gas appliances.

Test Procedure

Briefly, the test procedure followed and apparatus employed in studying performance of these devices was essentially similar to that described by J. A. Perry.² Our apparatus is shown in Figure 3. Butadiene, nitric oxide, and oxygen are added in measured volumes to the Laboratories' manufactured test gas from the glass siphon bottles shown in the rear. This resulting mixture is then aged in the forty-cubic-foot tower shown on the left for approximately two hours to permit gum formation and then passed through the filters located on the test manifold shown in final form in Figure 1. By adjusting the amount and concentration of nitric oxide added, it was possible to control the clogging rate of Rutz lighters and number of gum particles at the outlet of the aging tower.

At the highest rate of gum generation it was possible to completely close

Rutz lighters in about twenty minutes' time. Almost any slower rate of stoppage could be secured by proper manipulation. For continuous testing of filters, a rate of clogging of needle valve pilot within one-half to two hours was employed. This may be compared with the most extreme instance of stoppage reported in the field of four hours. To attain this fast rate of gum formation an aging period of about 2.2 hours was employed using a mixture of our manufactured gas to which approximately 1.2 per cent (of total volume of gas) butadiene, 0.6-0.8 per cent oxygen, and 80-120 grams of nitric oxide per million cubic feet had been added.

Tests, conducted to determine the amount of gum present in the gas passed through the gum filters, were made in several ways. The one used for control purposes and a most practical method was to pass gas from the outlet of the aging tower through an unprotected needle valve and then to burn it at a pilot port. The time required to completely clog the valve, as shown by extinguishment of the pilot flame, gave a direct indication of the amount of gum in the gas. Deposits on the valve needle were inspected by employing a microscope. These deposits were soluble in dilute alkali and decomposed violently on heating.

Another method of gum determination made use of the Tyndall beam tester loaned by the United Gas Improvement Company. This instrument permitted visual inspection of gum particles in the gas stream, as well as

determination of their number and size. Gas from the aging tower could be passed through a specially designed black-body cell into which a thin beam of intense light from an arc lamp was admitted. If particles of gum were present, their diffraction of the light would be visible to the eye in the same manner as dust particles appear to dance in a ray of sunlight. This instrument is illustrated by Figure 2, with arc lamp at left, condenser lens in the center and black-body cell at front right. A typical shaft of light, due to its diffraction by gum particles, may also be seen through the observation window of the rectangular cell in the foreground.

A small microscope having a magnification of 100 was used with the Tyndall beam tester for the purpose of counting the number of particles in a given area. Size of gum particles from approximately 0.5 (0.0000195 in.) to 1.5 microns (0.0000585 in.) diameters were estimated. Smaller particles could be seen but they could not be evaluated with our equipment.

The minute size of vapor-phase gum particles permits them to remain dispersed and suspended in a gas. As is well known they can be carried throughout an entire distribution system. Smallest particles reported⁸ as observed with an ultra-microscope are 0.1 micron (0.0000039 in.); the largest that will remain suspended in gas are 1.5 microns (0.0000585 in.) diameter. The average is estimated as 0.26 microns (0.00001 in.). These di-

(Continued on page 330)

Order U-1 on Inventories Clarified

(Office of War Utilities Release)

UTILITIES submitting applications for relief from the restrictions of Paragraph (f) of U-1 on inventories, withdrawals and deliveries, in some cases fail to provide sufficient information to permit determination of the justification for the requested relief. Permission to exceed the U-1 restrictions on inventories, deliveries and withdrawals should not be requested by utilities except when their circumstances are such as to make it impossible to safeguard the supply of utility service under war-time conditions without such relief.

Critical material shortages still continue and no utility should request authority to maintain larger inventories or use larger quantities of materials than are absolutely necessary. Where circumstances are such that the utility finds it necessary to request relief from the restrictions of the order, the following information should be supplied:

1. *Inventory.* In requesting permission to establish specific practical working minimum inventories in excess of those permitted by U-1, you should state by control class totals only, the dollar value of your 1940 inventory, the inventory permitted by U-1, and the inventory required for your present essential needs. Explain the reasons why it is necessary for you to request higher inventory bases than are authorized by U-1.

This explanation should cover the amount of plant for which your inventory furnishes protection, the relationship of plant values and essential inventory, the amount of inventory classified as spare parts, the past turnover of inventory classes, and all other pertinent factors. This study should cover only major items of material and those which aggregate to relatively large amounts.

2. *Deliveries and Withdrawals for Maintenance, Repairs, and Operations.* If, because of unusually low use of materials in the last 9 months of 1942, you consider it necessary to establish a higher base for deliveries and withdrawals under U-1, you should state in your request, by control class totals, the dollar value of your withdrawals in 1940, the withdrawal base as determined by U-1, and the base necessary for your essential needs. State briefly your reasons for requesting an increase in base.

If it is necessary for you to exceed the withdrawal or delivery restrictions of U-1 for an unusual maintenance or repair job, you should submit a request for permission to accept deliveries and make withdrawals during a specific calendar quarter, or quarters, stating by control class totals your normal delivery and withdrawal base, the dollar amount of deliveries and withdrawals necessary for the unusual job, that part of the unusual deliveries and withdrawals which can be absorbed in your normal bases, and the dollar amounts by which it is necessary to exceed your normal deliveries and withdrawals.

Producers should not request permission to exceed the delivery and withdrawal restrictions of U-1 simply because a maintenance or repair job is unusual or emergency. They should accomplish this work if at all possible within their normal delivery or withdrawal bases, and ask for permission to exceed by only the amounts necessary to meet their essential needs.

3. *Deliveries and Withdrawals for Extensions to Consumers Under U-1-c, U-1-d, and U-1-e.* If it is not possible for a Producer to make extensions authorized by U-1-c, U-1-d, and U-1-e within the normal deliveries and withdrawals authorized by U-1, he should submit a request for permission to exceed the delivery and withdrawal restrictions of U-1 for a specific calendar quarter, or quarters, indicating by control class totals only, for each quarter, the normal delivery and withdrawal base, the estimated dollar value of withdrawals

necessary to make such extensions, that part of the withdrawals which can be made within the normal authorization of U-1, and that part of the withdrawals which must be made in excess of the restrictions of U-1.

He should also state that part of the necessary deliveries which can be made from his excess inventory and that part which must be purchased from other Producers or Suppliers. The Producer should indicate briefly the number and type of consumers which are to be connected.

All deliveries and withdrawals which are authorized in excess of the restrictions of U-1 are to be considered as deliveries and withdrawals under U-1 and included in the Producer's record of deliveries and withdrawals under U-1, including reports which are required from Producers under U-1. Producers should indicate in their records under U-1, and in filing quarterly reports when required by the War Production Board, all specific authorizations to exceed the restrictions of U-1.

Utility Motor Vehicle Developments



Linn Edsall

discussion at the Section's 1943-'44 organization meeting in New York, June 28. Following are the highlights of Mr. Edsall's summary:

The rubber situation seems to be easing further. Tire recaps for truck tires will probably be obtainable without certificates in a short time. At a somewhat later time, recapping material for passenger car tires will be of much better quality; approximately that of the present truck recapping material. This change will come through in about two months.

The proposal made to Lee A. Brown, head of the Inspection Section of OPA, that the utilities be permitted to maintain a small reserve stock of tires has been "tabled" temporarily, with the understanding that it should be brought to his attention again in two or three months.

Operating utilities can help greatly in maintaining adequate tire supplies and obtaining replacements promptly by simplifying company purchasing and rationing procedures and maintaining close contact with rationing boards. It has been found by some companies that waiting time for ap-

proval at rationing boards can be held down to an average of 24 hours, if proper methods are used.

There are some passenger cars still in the hands of dealers, suitable for use by utilities. Under the rationing procedure, if all the cars of the utilities are in use, even though the use is small, certificates to purchase new cars in replacement of any cars of 1939 model or older and which have been used for a minimum of 40,000 miles, can be obtained. If advantage is taken of this, utility fleets can be strengthened in preparation for the time that is coming when all available vehicles will be used to their limit.

Gasoline restrictions in the eastern states will probably not be relaxed for some time. ODT and OPA have been given reduced quantities of gasoline to ration under recent orders of the Fuel Administration. This, coupled with military demands, accounts for the recent restrictions, but the restrictions will probably remain in force, even though military demands lessen, in order to save transportation.

ODT is contemplating further changes in existing orders, in order to accomplish required fuel savings, but utility operations will probably be exempt from most or all of these restrictions. Utilities are now allowed all necessary motor fuel. This will be continued unless the policy of WPB and ODT is changed.

ODT quarterly reports have been simplified insofar as utilities are concerned. ODT release No. 186, dated April 5, 1943, limits the items which utilities must report quarterly to Nos. 1, 2, and 24, unless there are utilities operating vehicles in some over-the-road service, in which case Nos. 12 and 13 must be reported.



Ernest R. Acker

To the Members of the American Gas Association:

ANNOUNCEMENT is hereby made to the membership of the Association, in accordance with Section 2 of Article II of the by-laws, of the following report of the General Nominating Committee which will be presented to the Annual Meeting in St. Louis, October 12:

For President—Ernest R. Acker, President, Central Hudson Gas & Electric Corporation, Poughkeepsie, N. Y.

Nominating Committee Reports for 1943-1944

For Vice-President—J. French Robinson, President, The East Ohio Gas Company, Cleveland, Ohio.



J. French Robinson

For Treasurer—J. L. Llewellyn, Insurance Manager, The Brooklyn Union Gas Company, Brooklyn, N. Y.



J. L. Llewellyn

For Directors—two-year terms: F. M. Banks, Vice-President, Southern California Gas Company, Los Angeles, Calif.

Walter C. Beckjord, Executive Vice-President, Columbia Gas and Electric Corporation, New York.

C. M. Cohn, President, Consolidated Gas Electric

Light & Power Co. of Baltimore, Baltimore, Md.

Watson E. Derwent, Vice-President, Geo. D. Roper Corporation, Rockford, Ill.

R. L. Fletcher, Vice-President, Providence Gas Company, Providence, R. I.

D. A. Hulcy, President, Lone Star Gas Company, Dallas, Texas.

E. P. Noppel, Ebasco Services Inc., New York.

Bruno Rahn, President, Milwaukee Gas Light Company, Milwaukee, Wis.

Louis Ruthenburg, President, Servel Inc., Evansville, Ind.



F. M. Banks



Walter C. Beckjord



C. M. Cohn



Watson E. Derwent



R. L. Fletcher



D. A. Hulcy



E. P. Noppel



Bruno Rahn



Louis Ruthenburg



E. J. Tucker



H. Carl Wolf



Charles A. Tattersall



R. E. Wertz



O. H. Ritenour



Charles G. Young



Malcolm Leach



C. V. Sorenson



Charles E. Turner



R. H. Hargrove



C. E. Packman



Harry K. Wrench



J. H. Warden



L. E. Knowlton

E. J. Tucker, Director and General Manager, Consumers Gas Company of Toronto, Toronto, Ontario.

H. Carl Wolf, President, Atlanta Gas Light Company, Atlanta, Ga.
Respectfully submitted,

H. R. COOK, JR., *Chairman*
E. M. FARNSWORTH
R. W. HENDEE
GEO. S. JONES
JAMES F. POLLARD
FRANK C. SMITH

General Nominating Committee

Section Nominations

The following have been nominated by Section Nominating Committees to serve as Section officers for the next Association year:

Natural Gas Section: For Chairman—R. E. Wertz, Amarillo Gas Company, Amarillo, Texas. For Vice-Chairman—R. H. Hargrove, United Gas Pipe Line Company, Shreveport, La.

Accounting Section: For Chairman—O. H. Ritenour, Washington Gas Light Company, Washington, D. C. For Vice-Chairman—C. E. Packman, Middle West Service Co., Chicago, Ill.

Industrial & Commercial Gas Section:

For Chairman—Charles G. Young, Springfield Gas Light Co., Springfield, Mass. For Vice-Chairman—Harry K. Wrench, Minneapolis Gas Light Co., Minneapolis, Minn.

Manufacturers Section: For Chairman

—Malcolm Leach, Glenwood Range Co., Taunton, Mass.

Publicity & Advertising Committee:

For Chairman—Charles A. Tattersall, Niagara Hudson Power Company, New York.

Residential Section: For Chairman—

C. V. Sorenson, Northern Indiana Public Service Co., Hammond, Ind. For Vice-Chairman—J. H. Warden, Oklahoma Natural Gas Company, Tulsa, Okla.

Technical Section: For Chairman—

Charles F. Turner, The East Ohio Gas Company, Cleveland, Ohio. For Vice-Chairman—L. E. Knowlton, Providence Gas Company, Providence, R. I.

Charles A. Munroe Award

IN the belief that recognition of service to an industry is especially appropriate in war time, the Charles A. Munroe Award of the American Gas Association is offered again this year. The award consists of a substantial sum of money and a permanent certificate and is made annually by the Executive Board to the individual judged to have made the most outstanding contribution toward the advancement of the gas industry.

An accomplishment on any phase of the gas business may be considered. For instance, since the first award in 1929, it has been given for developments in refrigeration; labor saving accounting; rate making; dealer cooperation; sales expansion; public relations; research; change-over from one to another kind of gas; promotion on the national advertising program; scientific developments in connection with gas measurement; gas compressors, etc.

Perhaps you know of someone whose accomplishments in behalf of the gas industry make him worthy of consideration for the award. Special consideration will be given to war conditions. If so, it is suggested that you sponsor an application on his behalf. Applications may be sent to Association Headquarters but they must, under the rules, be received by August 1, 1943.

Roper Wins "E"

THE George D. Roper Corporation, peacetime manufacturer of gas ranges, has joined the select circle of companies who have been awarded the Army-Navy E for excellence in war production. This fine achievement is commemorated in a brochure dedicated to their employees which contains the program of presentation, history of the company, and pictorial display of the company's war work.

Summer Air Conditioning Committee Looks to Post-War Period

THE Joint Committee on Gas Summer Air Conditioning of the Industrial and Commercial Gas Section and the Residential Section has two important functions. First, to encourage the commercial development of air conditioning in the summer with gas and second, to work toward the rapid development of engineering methods and equipment to facilitate the first.

The studies of the Joint Committee, as contained in its reports and papers, constitute a complete history of this development from the time the Committee on Industrial Gas Research completed on behalf of the gas industry the original investigations and research work in this field.

The Joint Committee supervises the Association's research project in gas summer air conditioning. This project, which is being carried on at the A. G. A. Laboratories, is being conducted with the close cooperation and active assistance of each of the equipment manufacturers in this field. In this connection the Joint Committee has a Technical Advisory Committee to assist in preparing the working outlines for research and to review technical material before it is published.

His business career has been confined to American Radiator Company and Washington Gas Light Company. Starting with the French subsidiary of American Radiator in 1925 and later transferring to this country, he learned the business literally from the ground up, being successively cupola laborer, cupola operator, core maker, liner, foundry gang foreman, chemist, efficiency engineer, design engineer, planning and research engineer, and utilization engineer.

In October 1931 Mr. Oursuff organized the Utilization Department of Washington Gas Light Company, setting up a well-equipped laboratory, and becoming head of the department. In 1938 he took on the additional duties of supervision of the Commercial and Industrial Department and Government Department of his company. A founder and past president of the Washington, D. C. Chapter of the American Society of Heating and Ventilating Engineers, as well as a member of the American Society of Refrigerating Engineers, he has developed many valuable contacts in the field.

Extensive A. G. A. committee experience in all fields of gas appliances and utilization

has given Mr. Oursuff a solid foundation for heading the Summer Air Conditioning Committee. His busy life includes several hobbies. Among them are photography and musical composition. In addition to finding time to maintain his reputation as an expert tennis player he is raising a Victory garden and a family of five husky children.

Assisting Mr. Oursuff on the Joint Committee on Summer Air Conditioning are: Carl H. Dean, Tulsa, Okla.; W. F. Friend, New York, N. Y.; William R. Hainsworth, Evansville, Ind.; H. W. Heisterkamp, Cleveland, Ohio; F. M. Johnson, Toledo, Ohio; Henry O. Loebell, New York, N. Y.; A. W. Lundstrum, New York, N. Y.; G. E. May, New Orleans, La.; C. A. McKinney, Houston, Texas; H. P. Morehouse, Newark, N. J.; James C. Patterson, Syracuse, N. Y.; John deB. Shepard, Baltimore, Md.; George L. Simpson, Pittsburgh, Pa.; C. H. Waring, Kansas City, Mo.; Harry L. Warren, Los Angeles, Calif.; Glenn F. Zellhoefer, Bloomington, Ill.; and Eugene D. Milener, American Gas Association, New York, N. Y., Secretary.

Oursuff Leads Air Conditioning Committee



Leon Oursuff

THE chairman of the Joint Committee on Gas Summer Air Conditioning is Leon Oursuff of Washington Gas Light Company, Washington, D. C. Mr. Oursuff has been deeply interested in the subject from the beginning. He designed and supervised the installation made about ten

years ago in the old main office building of his company and last summer did the same in connection with the installation in the fine new office building of the company on H Street. Also, under his supervision, there have been installed a number of installations in Washington homes of various sizes, on all of which accurate operating data are collected.

Mr. Oursuff is the son of a Russian diplomat who held posts in a number of European countries. His secondary education was secured in a number of capital cities, following which he studied engineering at the University of Liege, Belgium, and at the Polytechnical Institute of Liege, graduating from the latter institution with honors. In World War I he was attached to the British Military Mission in South Russia.



G. Elmer May

air conditioning, as his company duties include not only engineering work, but also promotion and use of gas and electric services.

Mr. May is a full-fledged native of the colorful city of New Orleans. Like his parents, he was born there. Following completion of grade school and "prep" school, he graduated in both Mechanical and Electrical Engineering from New Orleans' Tulane University where, incidentally, he recently equipped the handsome new Tulane Library with gas air conditioning, designing it both for the comfort of readers and for the proper preservation of books and manuscripts. His entire business career has been with New Orleans Public Service.

Well known in heating and ventilating circles, Mr. May organized and was first

May Heads Research Group

ENERGETIC and capable is G. Elmer May, chairman of the A. G. A. Technical Advisory Committee on Gas Summer Air Conditioning and utilization engineer of New Orleans Public Service Inc. Mr. May is well qualified for his committee work in the new field of gas summer

president of the Delta (Louisiana) Chapter of the American Society of Heating and Ventilating Engineers. He has presented six important papers on air conditioning, the latest at the A. G. A. War Conference on Industrial and Commercial Gas entitled "Air Conditioning Small Commercial Establishments with Gas" which was published in the April A. G. A. MONTHLY.

As Chairman of the Technical Advisory Committee on Gas Summer Air Conditioning, Mr. May is ex-officio a member of the Joint Committee on Gas Summer Air Conditioning of the Industrial and Commercial Gas Section and the Residential Section. Serving with him are: W. F. Friend, New York, N. Y.; C. A. McKinney, Houston, Texas; L. Oursuff, Washington, D. C.; John deB. Shepard, Baltimore, Md.; Harry L. Warren, Los Angeles, Calif.; Eugene D. Milener, New York, N. Y., Secretary.

Miss Shank Appointed

DOROTHY SHANK has been appointed director of the experimental kitchen and associate editor of "What's New in Home Economics." Miss Shank was formerly in charge of the food utilization section of the Bureau of Home Economics of the U. S. Department of Agriculture. Previously she had been director of the research kitchen of American Stove Company.

The "production line" efforts of three Houston neighbors who borrowed a pressure cooker from the Houston Natural Gas Corporation



The 246 pints of vegetables which they processed included string beans, lima beans, swiss chard, squash, corn, carrots and mixed vegetables

Pressure Cookers for the Asking



Kenneth Fellows

HOW can our gas company make the greatest contribution to the war-time nutrition program in your community?"

This was the question asked home demonstration agents, agricultural agents, home economics teachers, Red Cross and Office of Civilian Defense nutrition committees, individuals and club members in a survey conducted this spring by representatives of the Houston Natural Gas Corporation in the 19 counties which the company serves along the Texas Gulf Coast.

Virtually unanimous were their replies, which revealed that inasmuch as there was a dearth of pressure cookers, and since the procurement of new cookers was subject to rigid rationing regulations, the greatest possible assistance could come through any plan which would make additional pressure cookers available.

It was pointed out that although more food will be canned by homemakers this year than ever before, a much greater quantity might be anticipated in this wartime period were it not for the shortage of cookers.

By KENNETH FELLOWS

*Advertising Manager, Houston
Natural Gas Corporation,
Houston, Texas*

With such information at hand, the gas company determined to see what could be done. It was reasoned that if cookers could be purchased and made available through each of the company offices to customers for a stipulated period without charge, a minimum amount of equipment could be made to serve a maximum number of users.

Furthermore, the plan would offer to hundreds of victory gardeners with a small surplus of vegetables at their disposal their only opportunity to secure a pressure cooker, for the limited amount of canning which they would do would not qualify them to buy a cooker sold under rationing restrictions requiring that each purchaser can at least 750 quarts of food in a year's time.

To get the public's reaction, the gas company released publicity to the newspapers in its system early in May asking substantially this question: "Would you make use of a pressure cooker for home canning if one were made available to you on a free loan basis from your Houston Natural Gas office?"

The response was so enthusiastic—terrific would be a better word—that within ten days 1,631 families indicated to the gas company that they would utilize the cookers to can an anticipated 268,262 quarts of food. Housewives swamped district offices seeking the Department of Agriculture application form which it was requested they sign as evidence to the County Farm Rationing Boards that the cookers would be used to the greatest advantage in the event the company was permitted to buy them.

The plan was presented to the State Extension Service at College Station, Texas, where its possibilities were lauded. A Texas representative of the Department of Agriculture pointed out that there was a definite need in the Texas Gulf Coast area for the cookers because of the greatly increased population engaged in war industries whose food purchases in the off-season would exhaust the normal supply of fresh vegetables unless that supply were supplemented through home canning.

That leaders in the gas industry looked with favor upon the plan was indicated by a statement in which one of them said, "We believe that the proposal of the Houston Natural Gas Corporation represents another opportunity for the gas industry to contrib-

ute to the national welfare by stimulating food processing and conservation among its 18,000,000 residential customers."

Goes to Washington

Thus, with the knowledge that the plan had been heartily endorsed on all sides and armed with hundreds of applications seeking the use of the cookers, a representative of the gas company was delegated to go to Washington and lay the program before food production administration authorities in an effort to ascertain definitely that the cookers might be purchased. As a result of his presentation, which accomplished what reams of correspondence and countless long distance telephone calls had failed to do, a directive was issued authorizing the purchase of the equipment.

It was a matter of only a few days before delivery of the cookers was made to the Houston headquarters of the gas company by the Burpee Company of Barrington, Illinois. The cookers were then pro-rated to the district offices of the company according to the number of applications that had been received in the various communities.

Demonstrations featuring the use of the cooker were arranged by the district managers in each community and invitations to be present were mailed to each homemaker who had expressed a desire to borrow a cooker. Further publicity was given to the demonstration through a large newspaper advertisement and news stories which invited the general public to be in attendance.

Successful Demonstrations

The well-attended demonstrations were conducted by the county home demonstration agents, who for years have rendered an outstanding service in the field of local nutrition, and too much cannot be said concerning the efficient manner in which they were handled. The demonstrators took particular precaution to inform homemakers who had not previously used a cooker of the importance of its general care. Those present who were familiar with the cookers were instructed in new approved canning processes and asked to assist the less experienced homemakers at such time as the latter's

turn would arrive to borrow the cooker.

The date on which the program was to be officially inaugurated and the cookers made available was announced at the demonstrations. Homemakers were instructed to make reservations in advance for the cookers with the understanding that their requests would be filled on a "first come, first served" basis.

Through the close cooperation of the district managers it was possible, with one or two exceptions, to launch the program in each community on the same date, June 11. It was on that date that the 61 pressure cookers secured by the Houston Natural Gas Corporation began performing daily service in the kitchens of homemakers throughout the entire gas company system.

50,000 Quarts "Ain't Hay"

Sixty-one cookers may not seem like an adequate number for distribution by a utility company that serves more than 60,000 homes, particularly when the distribution of the cookers is not limited to customers of the company. But sixty-one cookers working every day, with each one processing what so far has been a daily average of 26 quarts, means that in a month's time the program will be responsible for approximately 50,000 quarts of food—and to use the vernacular, "that ain't hay"—particularly when it represents food that might otherwise not have been canned due to the lack of proper equipment.

Promptly at 9:00 o'clock each morning the cookers begin a new day in new hands, and before their return to the gas company 24 hours later each one has played an important role in adding cans of properly prepared foods to the family larder—food that will help alleviate the food shortage which appears imminent.

The pressure cooker program is doing exactly what government food conservation agencies hoped it would do. In brief, it is making a minimum amount of equipment achieve maximum results for the reason the individual cookers never know an idle moment except when one is retained in the gas company office for a periodic check of its pressure gauge and general condition.

The cookers are the portable seven-

quart size. The person who wishes to borrow the cooker must call for it before 9:00 o'clock on the morning of the day on which it is reserved for her. Equally important, she is required to return it before 8:30 o'clock on the morning of the following day in order that it may be ready for the next borrower.

Loan Contract and Penalty

The homemaker signs a loan contract when she takes the cooker agreeing to return the cooker at the hour stipulated or pay a penalty of \$2.50 per day for each day she is delinquent in its return. She also waives any or all claims for damage which might result from the use of the cooker. Upon returning it to the company she is required to itemize the food which she has canned.

Reservations for the cookers have been made in some of the districts as far as 30 days in advance. The Houston office has a waiting list of several score of ladies who wish to be called in the event a reservation is cancelled. Incidentally, one of the many pleasant developments of the program thus far has been the thoughtful and patriotic consideration shown by housewives in calling immediately when they have found it necessary to cancel their reservation, so that some other person might be notified of the cooker's availability on that date. One housewife recently finished her own canning by noon, then rather than let the canner lie idle rounded up some of her neighbors and assisted them with their canning in her kitchen.

A Substantial Contribution

Thank you notes and personal expressions of gratitude give ample proof that a great amount of good will is accumulating for the Houston Natural Gas Corporation through the free loan of the pressure cookers. Considerable publicity, too, in newspapers, trade journals, and magazines of national circulation has been given the program. These aspects have been gratefully noted, but of far greater significance in the opinion of those responsible for the program remains the fact that it has afforded the gas utility one more opportunity to make a substantial contribution to the war effort.

British Experience . . . *Effect of War* *on the Operations of the Gas Industry*



S. J. Beale

YOU are having your troubles in gearing your activities to the war, and the British have had theirs. While there is no direct parallel, a relating of some of their successes and failures may be of

value to you.

It happened that from June 1941 to June 1942 my chief, Sir Frederick West, was president of the Institution of Gas Engineers. During that period he was able to assist the A. G. A. with information needed here on various phases of the British Gas Industry in War, especially that concerning problems brought about by bombings.

Many Unsolved Problems

There are still many such problems to be solved in both countries but no doubt in Britain anyway there is now a certain degree of stability in such matters. Today I am not going to dwell on the physical aspects to any extent, but rather on controls and adjustments which are so necessary in the continually shifting sands of a war economy.

As an example of necessary change I would mention the official pamphlet "Notes on Town Gas for Air Raid Wardens" which, although, an official Government pamphlet, was drawn up by the London Regional Gas Centre in 1940 and had to be brought up to date in 1942 as a result of experience. In 1940 the Government asked that industrial plants produce smoke from their chimneys as an aid to camouflage. In 1943 this request was rescinded as a measure toward the economy of badly needed fuel. No doubt

Presented at A. G. A. Production and Chemical Conference, New York, N. Y., May 24-25, 1943.

By S. J. BEALE

*General Manager, West Gas
Improvement Co., New York, N. Y.*

reduced bombings assisted the decision.

As you know, many acts of heroism have been performed in extinguishing fires on gasholders. About a hundred King George medals for bravery have been awarded gas men for this work. Recently it has been suggested holder crowns be made of a rougher material to assist those who need to walk in such places.

Substitution and Economies

To mention but a few items, with the normal ingredients of paints difficult to obtain, a tar base black paint has been evolved. In order to save metal, peace-time standards of bolt and nut sizes have been reduced in such matters as dimension across head and nut, a painless manner of saving metal.

Gas company showrooms now have little merchandise to display, but many are used for blood-bank donations, and as a meeting place of various local organizations and clubs—of great psychological value upon return to post-war business. This reminds me of a gas company showroom window which exhibited this notice "During an alert we shall remain open. In the event of a direct hit we shall close at once!"

Coal

This is a matter in which we are all vitally interested just now. Since the war started Major Lloyd George, son of the British Prime Minister during the closing phases of the last war, was appointed as Minister of Fuel and Power. In July 1942 he stated there was a gap of 12 million long tons between coal production and consumption. Not only the collieries, but consumers, both industrial and domestic,

helped to close this gap. Domestic consumers were asked to save 4 million tons and now have about succeeded in a voluntary rationing scheme by using less than their normal allowances.

Coal miners were put on an output bonus scheme which apparently has not come up to expectations, in spite of the large percentage of increased pay it incurred. This extra pay is not very attractive to them due to lack of consumers' goods available under the rigid British rationing scheme.

Gas companies have been receiving a much poorer quality of coal and at higher prices. You have a parallel to that. Deliveries are erratic with the result coal cars pile up demurrage charges. The Government increased such charges by a very large amount in order to obtain continued use of badly needed cars. In many cases gas companies have not the labor required for unloading a larger than usual number of cars and are unable to help the condition. Their only recourse is to discuss the charges with the District Freight Officer in their area. If they have good powers of persuasion they may be able to get them reduced, just maybe!

The Ministry of Fuel and Power has issued pamphlets on various aspects of gas manufacture giving suggestions for checking the details of various plant operations, listing items in detail to ensure good efficiency. Such pamphlets include Carbonizing Conditions, Retort House Operation, Checking and Cleaning Auxiliary Equipment, Steam Raising, etc.

Competition

The gas and electric industries have declared a truce in competition against each other "for the duration," and at the request of the Government. With many government officials electricity minded it is sometimes hard for gas men to maintain the armistice when

such people talk glowingly in public of the wonders of electricity, and not always without innuendos concerning gas.

War-Time Efficiency

Under the Minister of Fuel & Power there was appointed a Director of Gas Supply who had under him Regional Gas Liaison Officers. Regional Gas Engineering Advisory Boards were also appointed. A fuel efficiency campaign was started in gas production. Many papers on the subject have appeared in the technical press, and excellent they are. All are well worth reading. The outstanding paper is by Dr. S. Pexton of London's Gas Light & Coke Company. The coke oven industry has also set up a Fuel Efficiency Committee.

Most of the industry's committees are at work on problems under consideration prior to the war as well as new ones. Research is still continuing, even though scarcity of materials has in some cases reduced activity. Much

work is being done with post-war activities of the industry in view.

Ninety-seven per cent of British gas is distributed at 400 to 500 B.t.u., with one plant at 200, one at 375, others up to 450, which figure is the most popular, with 500 next on the list, and many in between. There are only a few over 500 B.t.u. including two at 560 and two at 600. Scotland appears to have lower values than England, with a top of 475 and down to 425.

I mention these figures as many have reduced calorific values during the war in order to permit washing for benzole, an important war-time measure in Britain. This results in a 15 to 20 B.t.u. reduction, which, in normal times would have to be made up by using additional coal. Reductions in declared values have been in the region of 10 to 60 B.t.u. The divergence is no doubt due to certain local conditions.

There have been a very few cases where calorific values have been increased, these being from 20 up to 50 B.t.u. They were probably due to main capacities, poorer coal quality, etc. Experience has shown these changes have resulted in adjustments confined mostly to such appliances as water

heaters. Who would dare suggest gas is not a flexible fuel? There is under discussion the suggestion of standardizing calorific values in Britain to 450, 475, and 500 B.t.u. No doubt this interesting subject will be perused in more detail after the war.

Fuel Target

It appears the public must register with dealers in order to obtain supplies of solid fuels. In this case gas companies are "dealers" as to coke sales. Gas as such is not yet rationed, and there is a national voluntary rationing of this fuel. There are penalties for misuse under the "Fuel & Lighting Order." For example hotels and theaters have been fined for unnecessary wastage. A man was fined for heating the kitchen with his oven, as was a store keeper for substituting gas for central heating. As you have done, gas companies advertise for fuel saving. It is said the King has had lines painted around bath tubs in Buckingham Palace at the five inch level in order to save hot water.

In many establishments "Fuel Wardens" have been appointed. It is their duty to see that no unnecessary burners are on or turned too high. This is especially true of restaurants, canteens, etc. A national chain of restaurants has put in this scheme with excellent results. Wardens report each week the amounts of coal, coke, gas, etc., used and savings compared with the previous week. This is reported at a weekly meeting of the staffs, and is enthusiastically received. War Bonds are given as prizes.



Photos by British Council

Pictures of the British gas industry in operation. Above and center are typical coal carbonization scenes. The bucket on the right lifts three-and-a-half tons of coal at a time to the hopper

There is an intensive fuel conservation campaign in which over 160 exhibitions have been held. The Ministry of Fuel & Power is giving an intensive course of instruction to technical officers of the Army in the operation and maintenance of automatic equipment installed in Army establishments.

During his early months of Office, Dr. E. W. Smith, Director of Gas Supply, visited areas of shortage and also large industrial plants using gas as fuel. He concluded that where definite shortages existed it was better to effect economies in usage rather than build new plants. He thought a national saving of 20% could be effected, and this without major changes of design or in making elaborate tests; but by using ordinary common sense.

The Ministry of Fuel & Power issues a monthly sheet "Fuel Efficiency News" giving data on methods of fuel conservation showing actual cases and telling how to get in touch with regional committees. Astonishing results are being obtained.

Experimental Rationing Program

Here is the Fuel Target set up as an experiment for the year beginning July 1, 1942. It was expected a revision would be required after the year is completed, probably in the upward direction, especially a raising of the gas equivalent. Except for solid fuel and perhaps paraffin the scheme appears to be only a try-out for future possible rigid fuel rationing.

1 unit— $\frac{1}{2}$ cwt. (56 lbs.) coal or coke
500 cu.ft. gas
50 units of electricity
1 Imp. gallon paraffin

For each person living in a house an additional allowance of 15 units is allowed, adults and children alike.

Average consumers use three quarters of fuel for heating rooms and water, one fifth for cooking, the rest (one twentieth) for lighting, gas radios and gas irons, etc.

1 ton of coal or coke = 40 units
or 20,000 cu.ft. of gas
or 2,000 units of electricity

Rooms	N	M	S
1	80	60	50
2	90	70	60
3	110	90	70
4	120	100	80



Photo by British Council

A collier moored alongside the wharf at a gas works in England. Coal is being unloaded by crane-grabs into the hoppers

5	140	110	90
6	150	120	100
7 or more	170	140	110

Up to the present, if undue hardship is experienced in the amount of solid fuel allowed, one must get in touch with the Local Fuel Overseer for an adjustment.

The British Commercial Gas Association have a number of movies available, and even pre-war several of these have been shown in public theaters. They are available to gas companies and others. Several have been produced during the war. One of the latest is "Eating at Work" and deals with the preparation of balanced meals for war workers.

Increased Charges

Due to increased cost of coal, labor and equipment a large number of gas

companies have found it necessary to increase their charges. This is done by obtaining a license from the Government for such increases, and of course there are definite requirements to be met before they are granted.

Speaking of charges reminds me that Britain has a large number of prepayment meters. In English currency 12 pennies are equivalent to 1 shilling. Due to some quirk of psychology some people seem to think twelve separate pennies placed in the meter at intervals will give them more gas than the use of one silver shilling. Actually the amount of gas is the same. Some of you know the English penny is very large and therefore contains much copper. An attempt is being made to get people with such meters, with both penny and shilling slots, to use shillings only. This will not only

release much copper for the war effort, but also helps in collections; especially where collectors are women as the copper is very heavy for them to carry.

Oil

It is essential Britain conserve all possible uses of petroleum products as they have to be imported. Their base gas load is coal gas, peaks being made up with carburetted water gas and some war-time reduction of calorific values are no doubt due to the need of using less oil even though not much C.W.G. is made and the calorific value is much lower than yours.

Motor transport must continue especially as all cars for private use have been forbidden for a long time. In 1936 coke oven plants extracted benzole from 97.9% of coal carbonized but gasworks extracted benzole from only 47.3%, apparently due to the small size of many plants. Since then many benzole extraction plants have been built. But these are not enough for the requirements, what with vast quantities of high grade fuel needed for the R.A.F., Tank Corps, etc.

As in the last war some "gas-bags" have been fitted to the tops of cars and trucks. Rather short distances are possible between refilling at gasworks. Some creosote was used before the war and may be still in use. The anticipated large saving is to be with producer gas attachments, chiefly for use with busses and trucks. There is a "Mobile Producer Gas Association" and fuels contemplated are activated high temperature coke, low temperature coke, charcoal, and anthracite coal. This latter is likely to be used in the greatest volume.

I have seen the following figures:—

For one Imperial gallon of gasoline the equivalent fuel consumption at the car transmissions is—

14 lbs.	producer gas
15-17 lbs.	coal gasification
30-45 lbs.	coal hydrogenation
16-23 lbs.	steam engine
30 lbs.	electric battery

As a start there are going to be about 6,000 producer gas units for vehicles. The Minister of War Transport has ordered owners of ten or more vehicles to convert 10% to producer

gas if they gross over two to three tons each.

In Scotland 651 busses are to be converted this year. One hundred and seven have been adopted and have run 2.5 million miles and saved 415,000 Imperial gallons of liquid fuel.

London is to have 550 busses converted, with a saving of 3.5 million Imperial gallons per year. Each bus burns one long ton of anthracite per week and will be refueled each 80 miles. Twenty-seven service stations are arranged.

Government Controls

A word of explanation. The British Gas Federation is composed of a voluntary membership which includes about all the gas organizations of the country.

The Minister of Fuel & Power recently told the chairman of the Federation that it is vitally important for the gas industry to formulate its plans for the future *now*, and that a plan should be submitted *within six months*, otherwise the Government itself will undertake such a plan. The British Gas Federation has appointed a "Fact-Finding Committee" which, no doubt, will study such matters as grouping, amalgamation, holding companies, location and ownership of plants, quantitative surveys, density of demand, position of coke ovens, capacity of existing plants, standards of service to consumers, by-product disposal, prices charged in various parts of the country, etc. You will see what a colossal task this is in but six months, but "orders is orders."

A. G. A. Meritorious Service Medal

SUPPORTED by an endowment in memory of Walter R. Addicks, then retired senior vice-president of the Consolidated Gas Company of New York, the American Gas Association Meritorious Service Medal is bestowed with discrimination making it an award to be greatly coveted. Applications for this award are now open to all gas companies.

Consisting of a beautiful gold medal, button, and certificate, this award by the Executive Board is the gas industry's official recognition of the gas company employee who has performed the most meritorious deed during the year. It is awarded for meritorious and conspicuous judgment, intelligence or bravery, either in the plant

or work of any gas undertaking, or having to do with the handling of the materials of manufacture or of the production, manufacture or distribution. It is available to an employee of any manufactured gas company or natural gas company or manufacturer company member of the Association. War conditions make it particularly suitable this year and will be especially considered by the Award Committee.

It may be that an employee of your company performed an act of heroism and self-sacrifice in saving life and property which will make him eligible for consideration for the 1943 American Gas Association Meritorious Service Medal.

To qualify, the deed must have been performed during the period beginning July 1, 1942 and ending June 30, 1943. Applications for the 1943 Award should be sent to Association Headquarters on or before August 1, 1943. Forms for the application will be furnished upon request.

Customers Read Their Own Meters



A typical customer marks her meter card

TWO thousand customers of the San Diego Gas and Electric Company living in scattered and mountainous areas have been asked to help the company conserve tires and manpower by reading their own meters. The procedure is not so complicated as it might appear, in that the company periodically mails to such customers a return post card on which is printed a drawing of the meter dials in the same position as they appear on the meter. The customer is expected to indicate the position of the dial hands on a specified date and mail the card to his district office. A bill is then rendered according to the customer's "reading."

Every three months the company employees will read the meter, making whatever adjustment is necessary. In the case of unoccupied or seldom occupied mountain cabins or homes, the company renders an estimated monthly bill based on past use, correcting the estimate every three months.

Safety Award to Servel

A SPECIAL award for Distinguished Service to Safety, was presented to the men and women employees of Servel, Inc., Evansville, Ind., Saturday, June 12, in recognition for their remarkable showing in establishing a lost-time accident record which was greatly below the average for industries performing similar operations during 1942. This is not the first award given to Servel employees by the National Safety Council, who select the winners.

The award is in the form of a plaque, and was presented to Dr. Thomas Dobbins, medical and safety director of Servel who accepted it on behalf of the employees. The presentation was made by Daniel Thompson, Chief of the Radio Section, National Safety Council, in the presence of Servel employees and executives at the Evansville plant. The proceedings were broadcast on a national "hook-up" as part of the radio production: "Fashions in Rattons."



Servel, Inc. receives a special wartime safety award. Front row: left to right: Dr. Thomas Dobbins, safety and medical director, Servel, Inc.; Louis Ruthenburg, president, Servel, Inc.; Dan Thompson. Second row: H. W. Fillmore; Harry Newcomb, George S. Jones, Jr.; Frank Taggart; W. E. Baker; Douglas Collins; R. C. Bonseigneur; Grant Fink. Back row: Walter Campbell; Lyman Hill; R. G. Rogers; Dr. R. S. Taylor; H. O. Roberts; E. A. Terhune; Al Waterman; R. J. Canniff and Gilbert Eberlin

New Gas Conservation Campaign Ready

A NEW gas conservation campaign to be used by manufactured gas companies to support the Government's program to conserve vital fuels for war purposes is now being developed by the American Gas Association's Publicity & Advertising Committee under the direction of the Committee on War Activities. It is expected that the complete campaign material will be in the mails by July 15.

This new educational program was suggested by J. A. Krug, director of the Office of War Utilities, War Production Board, in a letter to E. R. Acker, chairman of the Association's Committee on War Activities. In his letter Mr. Krug complimented the gas industry on its previous conservation programs and requested that the new one to be developed for the use of manufactured gas companies be put into effect promptly.

The campaign has been reviewed by representatives of the Office of War Utilities and has met with their approval. It consists of twelve newspaper advertisements and a bill stuffer. Mats reproducing all of the material are available from Association Headquarters, New York.

Gasoline for Utilities

A REVISED list of industries which are entitled to preferential treatment in the Eastern gasoline shortage area was issued June 7 by the Office of Defense Transportation. It replaces the original WPB list announced May 30 and divides essential industries into four groups: AA-1 (Most Critical); A-1 (Very Critical); A-2 (Critical); and A-3 (Important). Public utility services, including natural and manufactured gas, are classified as A-1.

Clearing House Plan Moves Gas Control Equipment to Shortage Areas

A CLEARING house plan of Minneapolis-Honeywell Regulator Company has found a ready market for thousands of automatic controls for gas heating, air conditioning and refrigeration equipment, created untold goodwill for the company, and made a critical priority product available where needed. The simple and effective formula was described in the April 15 issue of "Sales Management."

Surveying its sales records early in January, the company found an urgent demand for controls from wholesalers in some territories, but for which priorities could not be obtained. In other territories many wholesalers and manufacturers reported an excess of nonsaleable control stocks which could be sold without a priority.

Brain child of A. H. Lockrae, home office sales chief, the Minneapolis-Honeywell clearing house set out to level the hills and valleys of the lopsided supply picture. It did. And in a few weeks' time dormant inventories from Maine to California were practically cleaned out. Included were hundreds of obsolete, but workable, controls, still in their original cartons, which never would have been sold in normal times.

Each wholesaler and manufacturer who used Minneapolis-Honeywell's products was asked to send in a complete list of instruments which he wanted to sell and which were not frozen by priorities or other selling restrictions. Asked selling price f.o.b. wholesaler's city was the only other information required. Mr. Lockrae assembled this information in mimeographed form and distributed it to the wholesalers, but he left out the name and address of the seller for the very obvious reason that the seller

would be caught in a blizzard of replies and could not handle them.

Wholesalers snatched the reports like wildfire—sent in wires, phone calls, letters to Mr. Lockrae by the dozens asking for the instruments. Buyers' orders were handled in the routine of receipt, and a letter to the bidder giving the name and address of the seller was forwarded until it was indicated that the supply was exhausted. Transactions from there on were between buyer and seller.

The first list sent out contained approximately 25,000 instruments, and, after this supply was exhausted, a subsequent list was sent out May 1 containing an additional 10,000 instruments and controls. These, too, found a ready market.

In addition to producing its standard control devices for war plants and defense areas, Minneapolis-Honeywell is making telescopes, gunsights, tank-sighting equipment, and other ordnance items, and various electronic devices of its own design for the air forces.

Mrs. Harvey Retires

MRS. CECIL G. HARVEY, director of the home service division, Westchester Lighting Company, retired from the Consolidated Edison system in June.

During her 18 years with the company, Mrs. Harvey arranged for thousands of lecture-demonstrations on such topics as the care and use of gas and electric appliances, cookery, canning and kindred subjects. She is chairman of the Nutrition Committee of the Mount Vernon, N. Y., War Council.

Safety Trends

Contributed by the Accident Prevention Committee
 Edited by W. T. Rogers, Ebasco Services Inc., New York, N. Y.

ACCIDENT PREVENTION COMMITTEE



C. L. Hightower

THE Accident Prevention Committee met at the Edgewater Beach Hotel in Chicago on Friday, May 14, C. L. Hightower, chairman, presiding. Among the many pressing problems discussed at the meeting was that of Safety Meetings and Programs. The problem of obtaining

adequate committee representation at committee meetings was thoroughly analyzed and it was felt by those present that, disregarding current transportation difficulties and the press of urgent business, immediate steps were necessary to stimulate attendance. It was pointed out by Mr. Berman, chairman of the Committee on Accident Reporting and Recording, that the increase in the frequency and severity rates disclosed in the 1942 Accident Experience Report was a very serious matter, and that it was apparent that the committee's activities must be intensified.

After further discussion on the subject of committee personnel attendance it was felt that it would be desirable to increase the number of committee members in addition to inviting to membership on the committee past committee chairmen who would work actively with the committee and act as advisors. A resolution to this effect was passed by the committee.

Reports of various committee chairmen were presented and future activities outlined, following which consideration was given to new developments in the field of safety and health.

Mr. Berman discussed the Training Within Industry Program inaugurated by the War Manpower Commission which involves the training of foremen so that they may instruct their own groups and stated that the results to date have been favorable.

A. W. Breeland spoke on "Essential Services which the Safety Department Should Concentrate on During Wartime." He stressed the following: protection of property against air raids and sabotage, the training of new employees, the need for off-the-job safety and the importance of maintaining usual or regular accident and fire prevention programs even though the

responsibility of the Safety Department is greatly increased.

P. A. Alberty submitted a report on the subject of "Type of Work for which Women Are Suited and Methods that Can Be Followed in Training Them for Safe and Correct Job Performance." Mr. Alberty's report reviewed the use of women formerly engaged in stenography, book-keeping, and other similar tasks in the reading and repairing of meters, forms of service work, work in the drafting department, laboratory and garages, and their use in outlying stations such as meter, compressor, and mechanical, all of which work was formerly conducted by men.

He stated that the success of such a program in utilizing female personnel is dependent upon the proper selection of the duties for which they are to be responsible. While it is not thought advisable to place women at heavy manual jobs, their use in the field jobs included in the above categories has proved to be highly successful. The selection of women for placement should be in the hands of competent supervisors and the employee should undergo a strict physical examination. The report points out that proper working apparel should not be overlooked and it is thought that experience in hiring women and checking of their activities will undoubtedly indicate many future activities, not previously considered, in which they may engage in the gas industry.

GRINDING WHEEL OPERATION

1. Wear goggles while grinding, unless the wheel has a glass shield that effectively protects your eyes from flying particles.
2. Before turning on power, make sure that guards are in place, and wheel is securely and properly fastened on the spindle.
3. Adjust the tool rest as close to the wheel as possible without touching it: fasten the rest at (never below) the center line of the wheel. Never adjust the wheel while it is in motion.
4. When using a cold wheel, apply the work gradually, giving the wheel opportunity to warm up; this reduces chance of breakage.
5. Always use the face of the wheel when grinding—never the sides. Avoid striking the wheel on the side.
6. Report immediately to your supervisor any grinding wheel that seems to be unsafe.
7. When leaving the wheel, always shut off the power.

AWARDS

JOHAN W. WEST, JR., secretary, Accident Prevention Committee, reports that the following applications for McCarter awards have recently been approved by the Executive Board:

McCarter Medals

Frank D. Wright, Equitable Gas Co., Pittsburgh, Pa.
 Charles Van Liew, Public Service Electric & Gas Co., New Brunswick, N. J.
 Frederick H. Hummel, Pennsylvania Power & Light Co., Stroudsburg, Pa.

Certificate of Recognition

William F. Barr, Public Service Electric & Gas Co., New Brunswick, N. J.
 John Buckley, Public Service Electric & Gas Co., New Brunswick, N. J.

WEIGHT-LIFTING INJURIES

MATERIAL handling—whose smooth functioning is essential to capacity production—has long been the foremost source of work injuries in manufacturing. Strains, sprains, and hernias, incurred in manual lifting and carrying, loom large among such injuries both in number and seriousness. Laying workers up for 7 to 19 weeks, these injuries create a serious productive-time loss, a loss which could be largely eliminated by proper handling practices and methods.

Acting on widespread requests from industry, organized labor, and government-contract agencies, the U. S. Department of Labor's Division of Labor Standards last winter called together a group of safety experts, plant physicians and personnel officers to consider practical methods for preventing injury to workers engaged in the handling of heavy weights. A pamphlet, "A Guide to the Elimination of Weight-lifting Injuries," just published as the Division's Special Bulletin No. 11, embodies their recommendations.

Requests for this publication should be addressed to the Division of Labor Standards, U. S. Department of Labor, Washington, D. C.

Columbia Plans Safety Campaign

COLUMBIA Gas & Electric System, which for many years, has been a strong advocate of employee safety in its operations, is this year undertaking a system-wide drive to attain an accident-free August.

Experience in similar campaigns in the past which have been carried on by individual system companies, indicates that an intensive campaign in one month, in which the interest of every employee is aroused, has a carryover effect for a number of months afterward. It is hoped that the campaign slogan "On the Job" will also have its effect in the reduction of time lost for other causes.

Accident Experience . . . Gas Industry

Trends in 1942 Reflect Wartime Factors

By EDWARD R. MARTIN

*Supervisor, Statistical Activities,
American Gas Association*

STATISTICS analyzed in this article are taken from Statistical Bulletin No. 51, "Accident Experience in the Gas Industry for 1942," which contains more extensive figures on the industry's accident record. Copies may be obtained from the American Gas Association.

A RECENTLY completed survey of accidents occurring to employees of the gas industry during 1942, compiled by the Statistical Department of the American Gas Association in cooperation with the National Safety Council, indicates a rise in both frequency and severity rates from those recorded during 1941. These findings are based on a summarization of reports received from 439 gas companies employing 103,700 persons who accounted for 214,728,497 hours of exposure.

Because of the amount of questionnaire work emanating from governmental sources, together with a generally reduced and inexperienced personnel on the part of gas companies, it was necessary for us to meet our publication deadline with a lower percentage of employees represented than in previous years. However, the 103,700 employees for which we have collected data account for approximately 75 per cent of the employees of the industry, so we can assume that the trends herein discussed are representative of the industry as a whole.

Lost-Time Accidents (1942) Total Gas Industry

	Number of Lost-Time Accidents	Days Charged
Deaths and Permanent Total Disabilities	29	174,000
Permanent Partial Disabilities	74	36,835
Temporary Disabilities	2,880	49,084
Total	2,983	259,919

The 2,983 injuries reported indicate that almost three out of every one hundred employees suffered a lost-time ac-

cident during 1942. It is interesting to note that one out of every hundred accidents resulted in death; 2.5 out of every hundred, in a permanent partial disability; and 96.5 in a temporary disability. As a result of these accidents, the gas industry was charged with 259,919 days lost.

Frequency and severity rates showed a pronounced gain over those recorded for 1941. During the past year, there were 13.9 injuries for every 1,000,000 hours worked by gas company employees. While this is not much higher than the figure of 13.6 recorded for the previous year, it does bring us to the highest level since 1936. From another angle, there were 2.88 disabling injuries per 100 employees. This compares to 2.74 in 1941, and is the highest since 1937 when the industry was charged with 2.93 injuries for each 100 employees.

Severity Rates Up

As to severity rates, the number of days charged to disabling injuries per 1,000 hours worked rose from 0.90 in 1941, to 1.21 in 1942. Looking at this from the employee standpoint, there were 250.6 days charged to disabling injuries per 100 employees as compared to the figure of 181.1 for 1941.

The 29 deaths reported indicate that there were .0280 such accidents per 100 employees during 1942.

Manufactured Gas Industry

No. of Reporting Companies 222
Daily Average No. of Employees 49,686
Total No. of Hrs. Worked—
1942 104,466,298

There were 1,725 lost-time accidents to employees of manufactured gas companies during 1942; 10 of which were fatal. Some 47 resulted in permanent partial disability while 1,668 were classified as temporary disabilities.

The above indicates a frequency rate of 16.5 disabling injuries per 1,000,000 hours worked; or, 3.47 disabling injuries per 100 employees. The frequency of accidents, therefore, was well over 1941, and the highest since 1931.

Severity rates, on the other hand, more or less follow the pattern of past years, and were below the standard of 1941. The number of days charged to disabling injuries per 1,000 hours worked in 1942 was 0.98. Interpreting the figure on the basis of days charged due to disabling injuries per 100 employees, it was 206.8

Natural Gas Industry

No. of Reporting Companies 217
Daily Average No. of Employees 54,014
Total No. of Hrs. Worked—
1942 110,262,199

Frequency rates of the natural gas industry established a new low. The 11.4 disabling injuries per 1,000,000 hours worked, and 2.33 disabling injuries per 100 employees during 1942, stand as a mark at which to shoot in years to come. These figures are well below the 13.2 and 2.65, respectively, recorded in 1941.

Severity rates, on the other hand, were on the upturn. There were 1.43 days charged to disabling injuries per 1,000 hours worked in 1942 as against 0.78 in 1941. The number of days charged to disabling injuries per 100 employees rose from 156.2 in 1941, to 291.0 in 1942. This rise in severity rates can readily be traced to the 19

FOURTEEN YEAR SUMMARY OF ACCIDENT EXPERIENCE OF THE GAS INDUSTRY IN THE UNITED STATES

These data cover the entire operations of reporting gas companies and the operations of the gas department only for combination companies

Year	Number of Reporting Companies	Daily Average Number of Gas Employees	Total Number of Hours Worked by All Gas Employees	Number of Deaths and Permanent Disabilities	Total Number of Disabling Injuries (Lost Time Accidents)	Total Days Charged Due to Disabling Injuries (Lost Time Accidents)	Frequency Rates		Severity Rates		Number of Deaths and Permanent Disabilities per 100 Employees
							Number of Disabling Injuries per 1,000 Hours Worked	Number of Days Charged Due to Disabling Injuries per 1,000 Hours Worked	Number of Days Charged Due to Disabling Injuries per 100 Employees	Number of Days Charged Due to Disabling Injuries per 100 Employees	
MANUFACTURED GAS INDUSTRY											
1929	249	58,941	144,920,217	15	4,743	172,864	32.7	1.19	293.3	0.0254	
1930	305	65,818	162,719,013	28	3,635	257,917	22.3	1.59	391.9	0.0425	
1931	310	64,669	158,812,393	20	2,642	177,704	16.6	1.12	274.8	0.0309	
1932	279	58,059	139,076,458	36	1,637	266,595	11.8	1.92	459.2	0.0620	
1933	312	62,792	140,081,313	11	1,597	102,798	11.6	0.73	163.7	0.0175	
1934	264	64,287	133,961,544	13	1,859	126,109	13.9	0.94	196.2	0.0205	
1935	252	64,013	134,353,240	14	1,610	134,663	12.0	1.00	210.4	0.0219	
1936	258	65,110	139,709,459	14	1,973	128,194	14.1	0.92	196.9	0.0215	
1937	268	63,079	132,819,388	13	1,687	114,108	12.7	0.86	180.9	0.0206	
1938	240	58,961	123,305,349	5	1,343	62,837	2.28	0.51	106.6	0.0085	
1939	232	59,950	124,357,504	8	1,512	81,290	12.2	0.65	135.6	0.0133	
1940	230	60,131	123,140,646	17	1,658	148,768	13.5	1.21	247.4	0.0283	
1941	216	55,500	111,947,007	10	1,569	115,977	14.0	1.04	209.0	0.0234	
1942	222	49,686	104,466,298	10	1,725	102,747	16.5	0.98	206.8	0.0201	
NATURAL GAS INDUSTRY											
1929	105	22,906	58,803,876	18	1,475	131,646	25.1	2.24	574.7	0.0786	
1930	144	33,042	109,371,457	25	2,166	217,748	19.8	1.99	506.0	0.0589	
1931	143	33,564	80,662,315	15	1,217	124,389	15.1	1.54	370.6	0.0447	
1932	164	36,292	87,559,012	14	1,053	115,848	12.0	1.32	319.2	0.0386	
1933	161	37,611	87,792,792	12	1,078	97,755	11.6	1.13	252.2	0.0319	
1934	158	42,874	87,845,716	9	1,401	97,755	10.7	1.01	321.1	0.0210	
1935	176	44,457	87,983,955	17	1,463	155,354	16.0	1.77	371.1	0.0496	
1936	199	44,968	95,115,326	16	1,643	160,184	17.3	1.68	356.2	0.0356	
1937	212	51,063	109,641,028	11	1,661	111,590	15.2	1.02	218.5	0.0219	
1938	206	53,686	112,913,953	18	1,482	160,277	13.1	1.42	298.5	0.0335	
1939	203	58,201	119,216,252	8	1,587	94,449	13.3	0.79	162.3	0.0137	
1940	217	61,198	125,879,064	19	1,771	167,668	14.1	1.33	274.0	0.0310	
1941	216	61,849	124,433,368	9	1,641.5	96,598	13.2	2.65	156.2	0.0154	
1942	217	54,014	110,262,199	19	1,258	157,172	11.4	1.43	291.0	0.0352	

SUMMARY OF ACCIDENT EXPERIENCE OF THE GAS INDUSTRY IN THE UNITED STATES FOR 1942

These data cover the entire operations of reporting gas companies and the operations of the gas department only for combination companies

Class of Units	Number of Gas Companies Reporting Accident Statistics	Daily Average Number of Employees in Gas Department During 1942	Total Number of Hours Worked by All Gas Employees During 1942	Number of Lost Time Accidents				Days Charged Due to Lost Time Accidents				Accident Rates			
				Death and Permanent Disability	Temporary Disability	Permanent Partial Disability	Total Lost Time Accidents	Death and Permanent Disability	Temporary Disability	Permanent Partial Disability	Total Days Charged Due to Lost Time Accidents	Frequency (Number of Accidents per 1,000,000 Hours Worked)	Severity (Number of Days Lost per 1,000 Hours Worked)		
MANUFACTURED GAS INDUSTRY															
Large Units	75	45,520	95,434,679	8	45	1,501	1,554	48,000	16,835	23,549	88,384	16.3	0.93		
Medium Units	75	3,672	7,911,056	2	1	151	154	12,000	300	1,860	14,160	19.5	1.79		
Small Units	72	1,683	1,120,563	10	1	16	17	60,000	100	103	103	15.2	0.18		
Total	222	49,686	104,466,298	10	47	1,668	1,725	60,000	17,235	25,512	102,747	16.5	0.98		
NATURAL GAS INDUSTRY															
Large Units	73	51,164	104,249,365	17	26	1,141	1,184	102,000	15,100	21,942	130,042	11.4	1.33		
Medium Units	72	2,529	5,320,599	2	1	66	69	12,000	4,500	1,508	18,008	13.0	3.38		
Small Units	72	321	692,235	0	0	5	0	0	0	122	122	7.2	0.18		
Total	217	54,014	110,262,199	19	27	1,212	1,258	114,000	19,600	23,572	157,172	11.4	1.43		
TOTAL MANUFACTURED & NATURAL GAS INDUSTRY															
Large Units	148	96,684	199,684,044	25	71	2,642	2,738	150,000	31,935	45,491	227,426	13.7	1.14		
Medium Units	147	6,201	13,231,655	4	2	217	223	24,000	4,800	3,368	33,168	16.9	2.43		
Small Units	144	1,815	1,812,798	0	1	21	22	174,000	100	103	103	12.1	0.18		
Total	439	103,700	214,728,497	29	74	2,880	2,983	174,000	36,835	49,084	260,919	13.9	1.21		

FOURTEEN YEAR SUMMARY OF ACCIDENT EXPERIENCE OF THE MANUFACTURED AND NATURAL GAS INDUSTRY IN THE UNITED STATES

These data cover the entire operations of reporting gas companies and the operations of the gas department only for combination companies

Year	Number of Reporting Companies	Number of Deaths and Permanent Total Disabilities	Total Number of Disabling Injuries (Lost Time Accidents)	Total Days Charged Due to Disabling Injuries (Lost Time Accidents)	Frequency Rates		Severity Rates			
					Number of Disabling Injuries per 1,000,000 Hours Worked	Number of Disabling Injuries per 100 Employees	Number of Days Charged Due to Disabling Injuries per 1000 Hours Worked	Number of Days Charged Due to Disabling Injuries per 100 Employees	Number of Deaths and Permanent Total Disabilities per 100 Employees	
1929	354	33	6,218	304,510	30.5	7.60	1.49	372.0	.0403	
1930	449	53	5,801	475,665	21.3	5.33	1.75	437.0	.0487	
1931	453	35	3,859	302,093	16.1	3.93	1.26	307.5	.0356	
1932	443	50	2,690	382,443	11.9	2.85	1.69	405.3	.0530	
1933	473	23	2,575	197,669	11.5	2.56	0.88	196.9	.0229	
1934	422	22	3,260	223,864	14.7	3.04	1.01	208.9	.0205	
1935	458	31	3,073	290,017	13.8	2.90	1.30	273.9	.0293	
1936	457	30	3,616	288,378	15.4	3.28	1.23	262.0	.0273	
1937	480	24	3,348	225,698	13.8	2.93	0.93	197.7	.0212	
1938	446	23	2,825	223,114	12.0	2.51	0.94	198.1	.0204	
1939	433	16	3,099	175,739	12.7	2.62	0.72	148.7	.0135	
1940	449	36	3,429	316,436	13.8	2.83	1.27	260.8	.0297	
1941	456	22.5	3,210.5	212,575	13.6	2.74	0.90	181.1	.0192	
1942	439	29	2,983	259,919	13.9	2.88	1.21	250.6	.0280	

deaths occurring within the natural gas industry—just doubling the 9.5 fatalities of 1941.

Observations

The causes of industrial accidents in a war year may well be influenced by new and inexperienced personnel, of necessity doing a job which calls for the experience or guidance of an old-time employee. This is more than a theory, for definite evidence is presently being edited for publication in the A. G. A. Accident Prevention Committee's "Review of Fatal Injuries in the Gas Industry During 1942"—soon to be released. Here are a few quotations from the questionnaires which were used to gather this information:

"had been working for this utility only a part of one day."

"only worked on this particular job two days."

"since this was a new employee, it is believed that probably the desire to get the job done accounted for this accident."

While it is not my place to prescribe, but rather to record, it does appear essential that a redoubled effort towards educating new employees in safe practices be carried on by the safety men of the industry. That this situation will become more acute is a foregone conclusion, and in my opinion, presents one of the foremost challenges, not only to the safety men of the gas industry, but to those of industry as a whole.

Another interesting sidelight of the statistics for 1942 deals with fatalities

to employees of relatively small gas companies. After checking the individual company data, it was noted that there were nine fatalities reported by seven companies, each having less than two hundred employees. These particular companies account for 0.8 per cent of the industry's employees—yet 31 per cent of the fatalities recorded were charged to them.

Probing a little deeper into the statistics as reported by these companies, it is revealed that 13.2 per cent of their total accidents resulted in death, and because of this 97.8 per cent of their total time charged to disabling injuries was accounted for by the 54,000 days charged because of the nine fatalities. The fatality rates of the total industry were as follows: 1 per cent of all injuries fatal and 66.9 per cent of all time charged, the result thereof.

In closing, it appears that accident statistics for the year 1942 point out what may be expected for the duration of the war. This does not mean that our safety men will not be able to materially reduce the frequency rates during 1943, and years to come. Rather, the statistics tend to point out some of the weaker links in the chain of employee safety, and will serve as a yardstick for accident prevention for the duration of the war.

Tappan Wins "E"

THE Tappan Stove Company, Mansfield, Ohio, has received the Army-Navy Production Award for excellence in war production it was announced on June 16. Tappan, peacetime manufacturer of gas ranges, now makes more than 25 war products.

Utility Charges in War Housing

CHARGES for gas and electricity in new privately financed war housing projects may be added to the maximum rentals now permitted in war housing, according to Directive 25 issued June 28 by the War Production Board. The Directive does not affect the rental charges of war housing projects already authorized.

War housing projects are those which are part of the National Housing Agency program, which were built since September, 1941, and whose materials were obtained through WPB. Applications for the materials must stipulate the proposed rental charges, which are subject to the maximum of \$50 a month, plus a \$3 per room per month maximum for tenant services. Because war housing developments are given only one meter respectively for gas and electricity, these charges are not billed directly to tenants. In proposed projects, in contrast with those already authorized, the charges may be prorated among tenants without regard to the maximum allowances.

P. C. G. A. Post-War Planning Committee

A COMMITTEE on Gas Industry Development under the chairmanship of H. L. Masser, Southern California Gas Co., has been appointed by President F. M. Banks of the Pacific Coast Gas Association. This committee has established connections with national planning groups such as the A. G. A. Post-War Planning Committee and, in addition, will undertake studies of problems affecting the Pacific Coast gas industry.

Serving with Mr. Masser are: R. G. Barnett, Portland Gas and Coke Co.; E. H. Coe, Central Arizona Light and Power Co.; H. L. Farrar, Coast Counties Gas and Electric Co.; A. E. Holloway, San Diego Gas and Electric Co.; E. L. Payne, Payne Furnace and Supply Co.; J. F. Pollard, Seattle Gas Co.; H. A. Strong, Servel Inc., and W. G. Vincent, Pacific Gas and Electric Co.

House Folds Up Like Accordion

ACCORDION houses, which can be folded in a few hours and moved to new sites by truck or rail, were demonstrated in Akron, Ohio, June 22 to scientists celebrating inauguration of the Good-year Tire and Rubber Company's new \$1,350,000 research laboratory.

Accordion houses are a new step in prefabricated homes. Bay windows and other bays which are normally part of bedrooms, push inward to make the house temporarily a compact cubicle for moving.

Intended for permanent homes, the houses are designed for a family of four and are said to be neither cheap nor unattractive. Using some recent discoveries in plastics, they have certain comforts that until recently seldom went into anything except \$20,000 homes. The cost at present, in experimental stages, is not more than \$2,000.

The accordion houses are made of plywood plastics, the sort which the British are using in mosquito bombers. The exterior is covered by a thin metal skin, and in the future might be covered with a plastic.

Between the outer plywood and inner wallboard is a fireproof and waterproof filling of a new plastic insulation material almost as light as cotton, and so rigid it can be cut in blocks. Its insulating value in walls, floors and roofs of accordion houses is claimed to be equivalent to an eighteen-inch thickness of ordinary brick construction.

The present houses are twenty-six feet long, eight feet high, and when expanded, fifteen feet wide. Contracted for travel, they are eight feet wide, suitable for trucking on any highway or shipping on any flat car. They weigh less than two tons, contain two bedrooms, a combination living and dining room, kitchenette, bath and toilet facilities, closet and storage spaces. Bedrooms come fitted out like steamer state-rooms, one with a bed, the other with two bunks or cots.

Goodyear plans to build these prefabricated homes on assembly lines after the war.

W. Va. Geological Survey Publications

THREE reports dealing with the geology and two of West Virginia's resources will be released soon by the State Geological Survey. They are "Summarized Deep Well Records in West Virginia," by Rietz C. Tucker; "Rock Salt Deposits of West Virginia," by James H. C. Martens; and the "Devonian System of West Virginia," by Herbert P. Woodward.

The current request from the office of the Petroleum Administrator for an increase in the production of oil and gas makes "Summarized Deep Well Records in West Virginia," by R. C. Tucker especially timely, for deep well drilling is probably the most important method of finding new

oil and gas reserves in West Virginia. This report, accompanied by a map on which all the deep wells in the State are located, summarizes records of some 1600 wells in West Virginia and immediate bordering areas that have been drilled to the Onondaga lime or deeper.

Because of the discovery of large gas reserves in the lower members of the Devonian, the report on the "Devonian System of West Virginia," by Herbert P. Woodward is of great interest and importance to the oil and gas industry. This represents the second of a series recently initiated on the rock systems of the State. This volume contains data pertinent to the Devonian rocks, description of each formation, its general character, thickness, distribution, correlation, and nomenclature.

Kane in New Post

ML. (BOB) KANE, formerly assistant to the president of the Union Gas Company, Canada, and general sales manager of the company, accepted a position May 1, as representative on the Pacific Coast for B. G. Dahlberg, president of the Celotex Corporation and chairman of the board of Certain-teed Products Corporation.

Mr. Kane's experience in the utility field, as an operating and managing executive, as well as a consultant for large interests in Canada and the United States will prove of great value in his new field. At present he is located in Los Angeles, as vice-president and director of the Westberg Company, a subsidiary of Celotex and Certain-teed.

Reviews Gas Appliance Fire Safeguards

THE National Fire Protection Association, 60 Batterymarch St., Boston, Mass., has just published an important 18-page study entitled "Safeguarding Gas Appliances" by F. E. Vandaveer, assistant director, American Gas Association Testing Laboratories. It reviews the outstanding record of reduction in fire losses attributed to gas and gas appliances during the past 17 years, describes American Standard approval requirements, and improvements in test equipment and procedure. Copies may be secured from the N.F.P.A.

Motorbikes Used for Gas Service Work

FLORIDA Power & Light Company has developed a motorbike for use of meter readers and for general service work. The company now has 27 motorbikes in service in its territory.

The motorbikes have been assembled by the company, using a standard bicycle and small gasoline motor with various necessary accessories, at a cost of approximately \$80 per unit. The bikes travel about 120 to 140 miles on a gallon of gasoline.

Cohn Succeeds Wagner as Board Chairman



Charles M. Cohn

The newly-elected chairman of the board has spent his entire business career with the Baltimore company and has long been a member of its board of directors and its executive committee. He has been active in the American Gas Association and is a member of the executive board.



Herbert A. Wagner

Mr. Wagner's long career with the company began in 1908 when he was employed as consulting engineer. He was elected vice-president in 1910 and president in 1915. In 1939 he was re-elected president and chairman of the board.

"Gas Technology Review" Makes Its Bow

GAS Technology Review," published by the Institute of Gas Technology, made its first public appearance early in July. Its purpose is to review the current literature and patents (American and foreign) on all aspects of gas technology. By saving time for readers the new publication (to quote its own *Introduction*) seeks to help them "derive more benefit from other men's experience and have more time to enrich it with their own."

At its meeting on May 28 the Board of Trustees approved the publication plan and the subscription rates for the first year. During this time the review will be issued quarterly and copies will be sent free to members. The subscription rate to nonmembers is \$6.00 per year (\$3.00 for the two issues of 1943), with much lower rates for extra copies.

The new publication is solely an abstract journal and is not copyrighted. Its abstracts may be quoted if the source is acknowledged. Abstracts are printed in a form which permits mounting on index cards. Interested persons may obtain copies from the Technical Librarian, Institute of Gas Technology, 3300 Federal St., Chicago 16, Illinois.

Customer Accounting... Wartime Survey of Meter Reading and Billing Changes

DURING previous conferences there has been considerable discussion as to ways and means of dealing with manpower and material shortages as they affect meter reading and billing practices. Several plans were covered in some detail outlining just what specific companies did to meet the emergency conditions.

In order to determine what actual changes have been made in meter reading and billing plans and their effect on customer accounting, collections and customer relations, a questionnaire was circulated by the A.G.A. and E.E.I. Customer Activities Groups to a cross section of the gas and electric industry on a countrywide basis covering 32 states.

In this discussion I shall cover the part of the questionnaire dealing with meter reading and billing changes. A total of 89 companies replied to the questionnaire—74 companies reported having made changes and 15 companies made no changes. Several of these companies, however, are contemplating changes in the near future. In this latter group are companies ranging from 17,310 to 861,778 customers.

The dates when changes were made are as follows:

Companies

- 21 changed during first 6 months of 1942
- 39 changed during last 6 months of 1942
- 13 changed during first 2 months of 1943

This takes us up to March 1, 1943 and it should be observed that the number of companies changing during two months of 1943 are just about the same as the monthly average for the last half of 1942.

Coverage of Plans

It is noted that 21 companies applied their respective plans to cover the entire territory and 53 companies

Presented at Conference of Electric and Gas Industry Accountants, Cincinnati, Ohio, April 27-28, 1943.

By J. J. NATALE

*Philadelphia Electric Co.,
Philadelphia, Pa.*

applied their plan only to specific areas consisting of rural and outlying territory. In some cases it was indicated that the plans would be further extended to cover additional customers as manpower shortages occurred.

The following is a brief resume of types of plans adopted, number of companies under each plan and other general information:

5 Companies Adopted Bi-monthly Reading and Billing

Four of these companies ranging from 77,000 meters to 831,000 meters applied the change to the entire territory. The other company with 1,710,000 meters applied the change to rural territory only for approximately 270,000 customers.

26 Companies Adopted Plans which Provide for Customer Card Readings

In one the meters are read bi-monthly and in the other 25 companies the meters are read quarterly. These companies range in size from 8300 to 286,000 meters. Of this group only one company of approximately 53,000 meters applied the plan to its entire territory. This company reports a return of 65% of the cards sent out for customer readings. The other companies have extended the card plan only to rural or limited areas. The returns vary from a low of 65% to a high of 93%. Usually the readings are estimated if the cards are not returned in time for billing.

37 Companies Render a Bill Based on Estimated Use in the Non-reading Months

Eighteen of these companies read meters on a bi-monthly basis; 12 apply the

plan to their entire territory; 2 apply the plan to urban area only and read quarterly in the outlying area; 1 applies the plan to urban area only and reads every four months in the outlying area; 3 apply the plan to rural area only.

Of the 37 companies on the estimated bill plan, 19 read meters on a quarterly basis; 1 company applied the plan to its entire area of 266,000 meters; 18 companies applied their quarterly plan to rural or outlying areas only.

Most of the companies on the estimated bill plan allow the customer the option of furnishing a card reading in the non-reading month. In these cases cards are given out ranging from one at a time to a year's supply. The returns are usually about 90% of those given out.

In this group are one or two companies with a plan which has a slightly different angle from the general type of estimated bill plan. The amount of the bill rendered in the intervening months is based on one-half of the previous two months' kilowatt-hour use. While estimated use is associated with this billing on the company records, this is not shown on the customer's bill. The bill is rendered gross-net showing money only.

The reading bill (two months) is rendered showing in addition to other information, the gross amount on the double block plan for the total kilowatt-hours used, the gross amount for the previous month's interim bill (which is subtracted from the total gross for two months) and the gross and net amount for the current month. If the preceding interim bill is unpaid this is shown in the gross amount as an unpaid item.

4 Companies Adopted Budget or Memo Billing (Money Only)

Two with bi-monthly readings, the in-

terim bill based on approximately one-half of the preceding two months' bill; 2 with quarterly readings, the interim bill for a fixed monthly amount which is based on the average of the previous 12 months' use.

4 Companies Adopted Other Types of Plans Which Were Mainly Variations of the Plans Previously Commented Upon

Two of these companies have substituted customer card readings for company readings in rural territory formerly requiring use of automobiles. Return cards are mailed to the customers ahead of the reading dates. Where cards are not returned in time for billing, consumption is estimated and billed regularly. Readings on late returns are recorded for checking purposes and to serve as "guide posts," if necessary to estimate in the following month. No company readings are made in card reading territory except in cases where no card return is received for three full months. Then check reading is secured by servicemen when in the neighborhood on other work.

While this type plan has been extended to only a limited number of customers—17,000 by one company and 5,000 by another company—they are worthy of special comment.

Another company which has been on bi-monthly billing since 1917 has changed to reading 3 times a year and estimating 3 times a year for its rural and suburban area, comprising 80,000 customers. No change has been made in its urban area.

It should be noted that this survey did not disclose any company which had adopted straight quarterly reading and billing.

The types of customers generally excluded from the plans adopted are industrial and large commercial customers. Measured demand customers are always excluded. Many companies have excluded house heating accounts. In addition a number of companies has set some limit to the size of the commercial accounts which are included; for example, commercial accounts (not measured) using 3000 kilowatt-hour or over per month; gas accounts using 20 M.C.F. or over per month, and in some cases a money figure as low as \$15 per month.

Estimated Bills

The most common method followed in estimating bills is based on the use of the previous month and the same month last year adjusted for trend. It is apparent that due to the fact that most companies render a standard bill showing readings and consumption, a real effort is made to apply as many factors as possible in arriving at the estimate so that if an explanation is necessary the customer may be convinced that the amount billed has been arrived at systematically.

Practically all companies indicate on the bill that it has been estimated—22 companies by additional symbol on the billing or addressograph machines; 34 companies by rubber stamp. Only 4 companies use a sticker attached to the bill. 4 other companies have special printed notations or special postcard bill forms.

With regard to house heating accounts it is significant to note that 22 companies have adopted the plans of estimating house heating bills in the non-reading months. The plan followed is the degree day basis with a few minor variations.

Answers to the question, "What changes, shortcuts or economies have you made due to war conditions," did not disclose anything out of the ordinary. Several companies reported simplification or entire elimination of detailed revenue reports. Seven companies adopted postcard bills to replace standard bills thereby eliminating hand delivery.

Several companies reported employment of part-time personnel, such as high school students for meter reading and women on a part-time basis for clerical work in the office. One company reported reduction in hours when the business office is open to the public—reduced from 49 to 45 hours a week.

In the questionnaire there was included a specific question, "What were the main reasons for the adoption of your particular plan in preference to the alternative plans as indicated?" While only a few companies replied to this question, it is apparent that the main controlling elements were such as these:

Desire to give customer a monthly bill.
Limitation of machine equipment.

Nature of labor shortage.

Effect on customer relations.

Limitations imposed by regulatory bodies.

It is apparent in this survey that most companies have been influenced not only by the foregoing elements but have considered future possibilities as well and in no event are they "burning their bridges behind them"—so to speak. It will not be a difficult matter to extend their plans as the need develops during the war emergency or curtail and return to former methods if and when this becomes desirable. This is evident by the fact that most companies have retained the practice of rendering monthly bills while reading periods have been extended. As a further illustration of this point it was noted that all companies are continuing their incentive-to-pay plans, whether it be gross-net, discount or added charge. In addition, a number of companies have employed women for jobs usually filled by men prior to this emergency—19 companies have women meter readers and 10 companies have employed women for bill delivery.

Customers Show Adaptability

As previously mentioned, it is evident that all companies have considered customer attitude an important element. However, it should be pointed out that there is evidence that our customers will adjust themselves to whatever plan is adopted in these times, provided the plan is reasonable. For example, in the Philadelphia area there are two operating companies using entirely different plans. The Philadelphia Gas Works Company is rendering estimated bills on unread meters either through lack of manpower or inability to gain access to premises. I think I am correct in saying that they do not skip a reading due to lack of manpower more than one month at a time and most meters are being read monthly. The Philadelphia Electric Company is rendering a budget bill (money only) and reading the meters quarterly, applying the paid budget amounts as credits to the quarterly billing. Here are two entirely different plans applied to the same group of customers and both companies report satisfactory customer acceptance.

The point I want to stress is that the customers are generally interested in the amount they are asked to pay—the method used to arrive at the amount is secondary, provided the method is a reasonable one. This is further borne out by the fact that in reporting on customer acceptance of their particular plans, 67 companies reported favorable, 4 fair, and 1 poor. The poor acceptance applied to an estimated bill plan and was so classified because of increase in bill inquiries and complaints. However, it was based on a short period.

Interesting Trend

In order to further indicate present trend, the following may be of interest:

A gas company now on bi-monthly billing plan is considering incorporating house heating, commercial and industrial accounts where consumption runs more than \$15 a month into its bi-monthly reading plan, but with an estimated bill for the interim month. This will affect approximately 30,000 accounts.

A large electric company, now on bi-monthly billing with an estimated bill in the non-reading month adopted its particular plan as there was a shortage in meter readers only and, therefore, decided to continue to bill monthly. Company officials believe that the majority of customers prefer monthly bills and will continue to bill in this manner until a shortage of employees in other departments forces them to bill on a straight bi-monthly plan.

An electric company with 72,000 meters that started with a bi-monthly reading plan with customer card readings in the non-reading month in April 1942, for its suburban area, discontinued the plan in August 1942. At that time a bi-monthly plan rendering interim bills for a money amount only was adopted for the entire territory. Experience with postcard readings convinced this company that this feature caused too much special handling of accounts. It was found that customers failed to send in the cards at regular intervals as instructed, thereby causing a volume of miscellaneous billing. The management selected the plan of sending a bill with money amount only as

this would result in a saving as compared with estimating the readings and calculating an exact bill.

One large company with approximately 950,000 meters applied a quarterly reading plan with estimated bills in the non-reading months to approximately 55,000 rural and outlying customers in April 1942. A few months' experience with this plan indicated that the plan required additional inside forces due to estimating and subsequent cancellations of incorrect estimates. As a result of this a plan with the budget billing was devised and replaced the estimated plan in the rural area and extended to cover the entire territory. The budget or money-only type of bill resulted in a saving of approximately 35% in the billing force.

Conclusions

An analysis of a survey as extensive and up-to-date as this one cannot help but lead to some conclusions. While I shall not attempt to evaluate fully the merits of one plan as compared with another—certain observations may be in order.

Up to this date there is no one outstanding or generally agreed upon meter reading and billing plan to meet the changed conditions. No one plan appears to have greater customer acceptance than another, however, over 50% of the companies which have adopted a plan covering their entire territory have selected estimated monthly bills (use and money) with bi-monthly or quarterly billing. Most of the remaining companies which have made only partial changes are following the estimated bill plan. It may be reasonable to expect that these companies will extend their estimated bill plan as conditions may make it necessary. This, then, would lead to the conclusion that the trend is to the estimated bill plan.

The reasons for this, I believe, are clear. There is a desire to follow the established practice to render monthly statements. Most companies prior to the emergency used estimated bills for skip readings—tariff provisions were already established for estimated bills—experience had proved that estimated billing had customer acceptance. Customer reaction to more radical changes was an unknown factor and

this tended to discourage such changes. It might be said, in fact, that many companies drifted into the adoption of estimated billing for the emergency. Even though this trend appears to be established, it does not follow that more radical changes would not prove to be more advantageous.

In general, the manpower shortage developed first in meter reading, and estimated bills or customer card readings were the obvious solution to this shortage. The trend from here on will be affected by the rate and character of manpower shortage. The loss of inside personnel will make it more difficult to maintain monthly billing where estimated bill or card reading plans are in use. One alternative for these companies is to adopt either straight bi-monthly or quarterly billing.

Another intermediate solution is the budget or money only plan. The companies who have adopted budget billing have already anticipated the loss in manpower. They have gained most of the savings that bi-monthly or quarterly reading offers without the loss of the advantages of monthly billing. The favorable experience of companies who have adopted budget or money-only bills commends it to the industry as it faces the problem of adjustment to greater shortage of manpower. I am of the opinion that as the labor situation becomes increasingly difficult, there will be a wider acceptance of the budget billing plan and the straight bi-monthly or quarterly billing plans.

The choice between these two alternatives depends on such factors as limitations of machine equipment; approval of regulatory commissions; judgment with respect to customer paying habits; relative customer acceptance of money only versus multiple month bills, plus the factor of revenue requirements with respect to cash position.

All in all, it is quite likely that at a future spring conference we will have some new trends in customer accounting to report on and discuss.

Housing for War Workers

NATIONAL Housing Administrator reports more than 1,100,000 new housing units for essential war workers have been placed under construction since beginning of defense program in July, 1940.

Purchasing Agents Elect Newbery



Ben R. Newbery

members and includes Canada.

Mr. Newbery was district vice-president and financial officer for the national organization in 1941-42, and only last year was awarded a certificate in appreciation for his services to the national association. He is a charter member of the Dallas Purchasing Agents Association, serving as its president in 1929. Fred Bradley, purchasing agent for Southern Union Gas Company, is now president of the Dallas organization. Mr. Newbery has been with the Lone Star Gas Company almost 28 years.

G. T. Macbeth Retires

GEORGE T. MACBETH, chief gas engineer, Westchester Lighting Company, who has served in the utility field for 45 years, was among those employees of the Consolidated Edison System who retired in June.

Starting in 1898 with The United Gas Improvement Company, Philadelphia, Mr. Macbeth went with the Omaha Gas Company in 1900, and joined the Westchester company in 1901 as foreman of the Yonkers Works. In 1905, he was made superintendent of gas operations, Yonkers district; in 1906, he became acting gas engineer, and in 1915, chief gas engineer.

Mid-West Gas Group Meets in St. Paul

FIRST of a series of sectional meetings planned by the Mid-West Gas Association was held June 11 at St. Paul, Minnesota. It attracted an attendance of 66 delegates, a substantial proportion of which came from outside the Twin cities of St. Paul and Minneapolis. States represented in the attendance, in addition to Minnesota, included Iowa, Illinois, Nebraska, Wisconsin, North Dakota, and South Dakota. Officials hailed the meeting as an outstanding success.

D. R. Putnam, St. Paul, and Lester J. Eck, Minneapolis, were in charge of the meeting which opened with a report on the Production Conference by P. L. Covell. Mr. Eck followed with a report on the Post-War Planning Conference. Amos Abott talked on substitutes for gas oil; H. E.

Peckham spoke on the limitations of tin content in solder and lead a discussion on Order U-1. Mr. Putnam discussed the subject of filters for pilots and also natural gas-air mixtures for making up and mixing coke oven gas. There were no prepared papers.

Eastern Gas and Fuel Promotions

PROMOTION of three officials is announced by Halfdan Lee, president of Eastern Gas and Fuel Associates, Boston, Mass.

W. H. Earle, vice-president, Philadelphia Coke Company, Philadelphia, has been elected president.

Hugh MacArthur, vice-president, The Connecticut Coke Company, New Haven, Conn., has been elected president.

Both companies are subsidiaries of Eastern Gas and Fuel Associates.

H. B. Baird, vice-president of Eastern Gas and Fuel in charge of sales for its Koppers Coal Division, has been elected a trustee of Eastern Gas and Fuel. He will continue in his present position.

Mr. Earle and Mr. MacArthur succeed Angus MacArthur, deceased, who was president of Philadelphia Coke and Connecticut Coke.

John E. Zimmermann Is Dead



JOHN EDWARD ZIMMERMANN, chairman of the board of directors and former president of The United Gas Improvement Company, oldest holding company system in the country, died May 30. He was 69 years old.

Mr. Zimmermann was one of the outstanding public utility engineers of the nation. He was born in Buenos Aires, the son of John C. and Anna Cecelia Mackinley Zimmermann. After graduation from Pennsylvania in 1900 as a mechanical engineer, Mr. Zimmermann joined the engineering consulting firm of Dodge & Day in 1907, thereby stepping over the threshold to international prominence. Largely through his efforts the firm, later reorganized as Day & Zimmermann, Inc., became a leader in the field of public utility management and handled extensive government work in the first World War.

He left the presidency of Day & Zimmermann in 1929 to take up a similar position with The United Gas Improvement Company and remained for eleven years.

He was a member of the American Gas Association, American Society of Mechanical Engineers, the Franklin Institute, and the University.

McCall Award

ATENTION is called to the fact that a gas utility home service departments competing for the third annual awards in the McCall's Magazine Awards Contest must submit their papers to Association Headquarters on or before August 1, 1943.

Cash prizes of \$100, \$50 and \$25, with plaque or certificates will be made to the three home service directors or directing heads of the home service departments of those gas companies in the United States and Canada which have, in the judgment of the Jury of Awards, made the most outstanding contributions to the advancement of better living in the home.

The basis on which the awards will be made are as follows:

Entrants will submit papers of 2000 words or less covering the following five heads: (Rating for judging included)

1. The aim of the particular Home Service Department. (Rating—15 points)
2. The training of personnel and sales people. (Rating—15 points)
3. Community activities engaged in by the Home Service Department. (Rating—20 points)
4. Any increase in scope of Home Service activities in the current year over the preceding year. (Rating—25 points)
5. Accomplishment of aims. (Rating—25 points)

The awards will be announced in October 1943 for the calendar year of 1942.

Entries should be addressed to McCall's Magazine Awards, care of the American Gas Association, 420 Lexington Avenue, New York, New York.

Winners in Post-War Design Contest

IN a contest to bring out ideas for post-war gas appliance design, nine members of the Portland (Ore.) Gas & Coke Company organization won prizes of \$120 in war bonds and stamps, according to C. W. Steele, residential manager and contest director.

Dorothy Johnson won first prize of a \$25 war bond in the woman's section of the contest. Second and third prizes of \$10 and \$5 in war stamps went to Mrs. Gladys Hooze and Volenta Knowlton, respectively.

An identical set of prizes for the appliance service department went to Robertson Cook, Fred LaMear and Arthur Lembach in the order named. The third set of prizes for the home service and residential department went to Mrs. Eunice Doane, O. A. Stevenson and Mrs. Rita Calhoun, also in the order named.

There were 74 essays submitted in the contest, according to Mr. Steele who announced that all were forwarded as entries in an all-coast contest sponsored by the Pacific Coast Gas association with \$950 in war bonds and stamps as prizes.

Personal AND OTHERWISE

Farrar Named to Gas Institute Board



H. L. Farrar

H. L. FARRAR, president, Coast Counties Gas and Electric Co., San Francisco, Calif., has been named to the board of trustees of the Institute of Gas Technology at Illinois Institute of Technology. Announcement of his election was made by Harold Vagtborg, director of the Gas

Institute, following a meeting of the board on May 27.

Mr. Farrar is the only new member of the board of trustees. He replaces A. R. Bailey who is now in the armed forces.

All officers of the Institute of Gas Technology were reelected at the meeting. They include: Frank C. Smith, president, Houston Natural Gas Corporation, chairman; Henry T. Heald, president, Illinois Tech, president; Mr. Vagtborg, director; Robert B. Harper, vice-president, The Peoples Gas Light and Coke Company, secretary; and Raymond J. Spaeth, treasurer, Illinois Tech, treasurer.

Trustees for the term expiring in 1943—one-third of the members of the board—came up for re-election at the annual meeting.

Those re-elected for another three-year term include: W. Alton Jones, president, Cities Service Company; Alfred O. Kauffmann, retired president, Link-Belt Company; Frank H. Lerch, Jr., president, Gas Companies, Inc.; Clifford E. Paige, president, The Brooklyn Union Gas Company; Louis Ruthenberg, president, Servel, Inc.; and Wilfred Sykes, president, Inland Steel Company.

Raigorodsky Resigns

EFFECTIVE July 1, Paul M. Raigorodsky resigned as assistant director of the Natural Gas and Natural Gasoline Division, Petroleum Administration for War, to return to oil business activities in which he was engaged prior to joining PAW in September, 1941. James E. Pew, chief of the Natural Gasoline Section, PAW, has been named to succeed him.

Both Petroleum Administrator Harold L. Ickes and Deputy Administrator Ralph K.

Davies praised Mr. Raigorodsky for his valuable contributions and expressed regret at his resignation. He has been on leave of absence as vice-president and general manager of Petroleum Engineering, Inc., and the Glen Rose Gasoline Co., both with offices in Tulsa, Okla., and Houston, Texas.

Philadelphia Electric Co. Elects Three Directors

H.ORACE P. LIVERSIDGE, president of the Philadelphia Electric Company, announced that the board of directors, at a meeting held June 22, elected three new directors—John A. Diemand, Walter D. Fuller, and Edward Porter. These new board members fill the vacancies caused by the death of John E. Zimmermann and by the resignations of W. W. Bodine and Walter E. Long, all of whom were executives and directors of The United Gas Improvement Company.

Mr. Diemand is president of the Insurance Company of North America, the Alliance Insurance Company, the Fire and Marine Insurance Company, and the Indemnity Insurance Company of North America. Mr. Fuller is president of the Curtis Publishing Company. He is also chairman of the executive committee of the National Association of Manufacturers, of which he is a past president.

Edward Porter, a native Philadelphian, is vice-president in charge of finance and accounting of the Philadelphia Electric Company. He entered the utility industry with The United Gas Improvement Company.

U. G. I. Executive Changes

IN connection with making effective The United Gas Improvement Company's plan for divestment of certain securities and assets, certain organizational changes were made. Horace P. Liversidge, Harold S. Schutt, and Charles E. Brinley, who are also directors of Philadelphia Electric Company, resigned as directors of U.G.I., and Wm. W. Bodine, president, and Walter E. Long, vice-president of U.G.I., resigned as directors of Philadelphia Electric Company, eliminating the common officers and directors of the two companies. The U.G.I. Board adopted new by-laws providing for a reduction in the number of directors from eleven to nine. Mr. Long and John A. Frick, president of Allentown-Bethlehem Gas Company (a U.G.I. subsidiary), were elected directors of U.G.I.

John E. Zimmermann, former chairman of the board, having died on May 30, the company's by-laws were changed abolishing the position of chairman of the board and providing that the president shall be the chief executive officer in charge of the business and affairs of the company.

Mr. Bodine resigned as president, remaining as a director, and was elected chairman of the Executive Committee. Mr. Long was elected president of the company. Both of these changes are to be effective September 1, 1943.

Heads British Group

S.YDNEY J. PERRY of Leicester has been Selected President of the British Commercial Gas Association. This Association has not met since the beginning of the war and the election was by the Executive Committee to fill the vacancy caused by the resignation of President Grimsley on account of ill health.

Dr. Egloff Honored

D.R. GUSTAV EGLOFF, research director for Universal Oil Products Company, Chicago, was re-elected president of the American Institute of Chemists at the annual meeting of the Institute held in Chicago May 15. An article by Dr. Egloff describing war contributions of natural gas derivatives appeared in two parts in the January and February A. G. A. MONTHLY.

Dr. Hainsworth Heads Research Institute



Dr. Hainsworth

D.R. WILLIAM HAINSWORTH, vice-president in charge of engineering and research, Servel, Inc., Evansville, Ind., has been named chairman of the Industrial Research Institute. The Institute is made up of research executives representative of various types of industrial firms and industrial areas, organized for the purpose of cooperative study of their common problems.

Dr. Hainsworth is a nationally known refrigeration engineer. He has been associated with Servel, Inc., since 1926, the year that company first manufactured gas refrigerators. He is a former president of the American Society of Refrigerating Engineers.

In 1933, Dr. Hainsworth received the Charles A. Munroe Award of the American Gas Association, for improvements in which the principle of air cooling displaced use of water in gas refrigeration. Dr. Hainsworth resides in Larchmont, N. Y.



George Owens (center) receiving from Brooklyn Union Vice-President, B. G. Neilson a "token of esteem"—a handsome wrist watch—from his fellow officers and employees. Vice-President Hugh H. Cutbrell is watching. Presentation took place as Lieut. Commander Owens left to report for Naval duty

Owens Joins Navy as Lt. Commander

GEORGE F. B. OWENS, assistant vice-president of The Brooklyn Union Gas Company, has been commissioned a lieutenant commander in the Naval Reserve. He reported June 5 to the commandant of the 12th Naval District in San Francisco.

Mr. Owens is a past chairman of the A. G. A. Industrial and Commercial Gas Section and has been active in Association affairs. He attended the U. S. Naval Academy at Annapolis, but in his senior year transferred to the Massachusetts Institute of Technology for a course in electrical engineering. He was graduated with a B.S. degree in 1921 and an M.S. degree in 1922. He has been associated with Brooklyn Union since 1930.

Mr. Owens was the 660th employee of the Brooklyn utility to enter the armed services.

Bertl Takes New Post

NE. BERTL, sales technical representative for Consolidated Edison Company of New York, Inc., resigned July 2 to join Westinghouse Electric & Manufacturing Co., Bloomfield, N. J. Mr. Bertl will continue to be engaged in gas engineering in connection with the production of incandescent lamps and radio tubes.

Long active in American Gas Association activities, Mr. Bertl was the Association's representative in the National Fire Protection Association for a period of years and served on the committees on Gases and on Industrial Ovens of the latter organization. He was also a member of A. G. A. approval requirements committees for Burner Valves

and Industrial Boilers.

Mr. Bertl has been with Consolidated Edison or its predecessor, Consolidated Gas Company of New York, since 1920. Starting in the testing laboratory he became successively, service engineer in the utilization department, assistant engineer of utilization, and sales technical representative.

Laclede Elects Hirsh



Alfred Hirsh

continued his studies in night school at St. Louis University and when eighteen was made secretary to the president. He was elected assistant secretary of the company in 1925 and was named assistant secretary and treasurer in 1937.

He was advanced to the position of assistant to the president in 1938 and in 1941 was made general superintendent. His capabilities in handling the duties of that office won him the recognition of the Board which subsequently honored him with the office of vice-president.

Mr. Hirsh is a native of St. Louis and has an unbroken service record with the company.

FROM office boy to vice-president is the record of Alfred Hirsh of the Laclede Gas Light Company of St. Louis, who was elected to the latter position by the Board of Directors, May 27.

Mr. Hirsh started with Laclede in 1908 at the tender age of fifteen. He

Neuner Resigns Panhandle Post for Legal Practice

GJ. NEUNER, of Kansas City, Missouri, vice-president of Panhandle Eastern Pipe Line Company, has announced his resignation, to become effective as soon as it is convenient to the management and board of directors. Mr. Neuner has been directly connected with Panhandle Eastern for the past twelve years, first as counsel in charge of all legal activities, later as vice-president and counsel, and since August 1, 1938, as vice-president in charge of operations.

In announcing his resignation Mr. Neuner stated that after a short vacation he expects to realize an ambition long fostered, the resumption of the practice of law, specializing in legal matters connected with the oil, gas and utility industries, a field of activity in which he has been engaged during most of his business life.

Mr. Neuner first became connected with the oil and gas industry in February, 1916, shortly after leaving school, when he entered the services of the Cities Service Company interests in Bartlesville, Oklahoma. After ten years of service in various capacities with those interests he resigned in 1926 to become associated with the Barnsdall Oil Company in Tulsa, Oklahoma as assistant general counsel. After five years in that capacity he resigned in May, 1931, to join the Panhandle Eastern organization. Mr. Neuner expects to announce the permanent location of his offices in a short time.

John E. Bogan Joins Cribben & Sexton



John E. Bogan

JOHNE. BOGAN, formerly director of sales promotion, Association of Gas Appliance and Equipment Manufacturers, has been appointed general sales manager and war contract coordinator of the Cribben & Sexton Company, Chicago.

While affiliated with A.G.A.E.M., first as CP gas range field sales counsellor and later as director of the Certified Performance Gas Range Program, Mr. Bogan traveled thousands of miles conferring with dealers and gas company executives. He is a well known sales promotion authority and has addressed hundreds of sales groups.

Prior to joining the A.G.A.E.M., Mr. Bogan was director of sales for the Central Illinois Light Co., Peoria, with which company he had been associated for 15 years.

AFFILIATED ASSOCIATION

Activities

Manufacturers Hold Annual Meeting



Col. W. F. Rockwell

research, and post-war problems. It was the first meeting since the election of H. Leigh Whitelaw as managing director.

Colonel Willard F. Rockwell was re-elected president of the Association. Other officers re-elected were: Lyle C. Harvey, first vice-president; D. P. O'Keefe, second vice-president, and John Van Norden, treasurer.

A. G. A. Research Discussed

A large amount of discussion at the meeting centered around the manufacturers' position with respect to the type of research undertaken by the American Gas Association Testing Laboratories. Participating in this phase of the program during the morning general session were: Frank H. Adams, past president, A.G.A.E.M.; C. E. Bennett, chairman, A. G. A. Special Committee on Laboratories' Policies; and George E. Whitwell, chairman, Managing Committee, A. G. A. Testing Laboratories. Discussion of this subject continued at the divisional meetings in the afternoon and the director's meeting in the evening.

Colonel Rockwell, in his opening address, urged the appliance manufacturers to plan boldly for the post-war period. He said that time was getting short and manufacturers should start to examine now the new materials and tools becoming available. Hall M. Henry, chairman of the A. G. A. Subcommittee on Economic and Engineering Development of the Gas Industry, summarized the A. G. A. Post-War Planning Committee's program which is described by Chairman A. M. Beebe elsewhere in this issue.

Galen Van Meter, regional manager of the Committee for Economic Development, discussed this committee's activity. This group, he stated, is organized "to assist commerce and industry make its maximum

contribution towards maintaining high levels of productivity and employment in the post-war period."

Alexander Forward, managing director, A. G. A., spoke briefly bringing greetings from the Association. President Arthur F. Bridge, of Los Angeles, sent a message expressing his keen satisfaction with the effective collaboration of the two national associations.

Canadian Gas Association Holds Successful Conference

A MOST profitable conference of the Canadian Gas Association was held in the Royal York Hotel, Toronto, Canada, Tuesday, June 15, with President Frank D. Howell acting as chairman. The meeting, which was originally not scheduled because of the war, was made imperative by a number of important wartime problems. It attracted an unusually large attendance from far-distant points in Canada and the United States.

In appreciation of the fine cooperation that has existed between the Canadian and American Gas Associations during the many years of their affiliation and particularly the helpful services rendered the Canadian body by Alexander Forward, managing director, and R. M. Conner, director, A. G. A. Testing Laboratories, both these men were elected to honorary membership in the Canadian Gas Association. Both were present at the meeting and extended their hearty appreciation and thanks for this high honor.

Post-War Committee Planned

Prior to the open meeting, an executive meeting was held at which a number of organization matters were transacted. Arrangement was made for the appointment of a Post-War Planning Committee to collaborate with the A. G. A. committee. The work already accomplished by the latter group under the chairmanship of A. M. Beebe of Rochester, N. Y., was highly commended. Later, at the noonday luncheon the conference heard Mr. Forward present an interesting summary of the post-war planning activity, prepared by C. V. Sorenson, one of the subchairmen of the A. G. A. committee.

Two pending orders, an OPA rationing regulation and a WPB production regulation, were among the topics reviewed informally.

The general session closed with a splendid address on "Post-War Marketing of Gas Appliances" by Arthur P. Hirose, of McCall Corporation, New York. A paper giving Mr. Hirose's trenchant views is published elsewhere in this issue.

Separate meetings of various A.G.A.E.M. divisions occupied the entire afternoon. At the meeting of the Domestic Gas Range Division, CP range manufacturers appropriated \$10,000 for advertising, publicity and general promotion to keep the CP symbol alive during the war. It is planned to spend this amount in 1943.

A feature of the range division meeting was the presentation to John E. Bogan of an engraved gold watch for "outstanding service to CP range manufacturers." Mr. Bogan was director of the CP range program until his recent resignation to join Cribben & Sexton.



Alexander Forward



R. M. Conner

Elected Honorary C. G. A. Members

Present officers of the Canadian association and members of the Executive Committee were voted to continue in office for another year. The financial position of the organization was reported to be in excellent condition, and the secretary, George W. Allen, reported a substantial increase in membership during the past year. A vacancy on the Executive Committee left open by the retirement of O. B. Phillips was filled by the appointment of G. H. Huxtable, Ottawa Light, Heat & Power Co., Ottawa. C. G. A. members representing that body on the A. G. A. Managing Committees were reapportioned for the coming year.

The entire conference was in the nature of a roundtable discussion. Accelerated depreciation and deferred maintenance on gas properties and equipment were discussed and a resolution was adopted asking the Canadian Government to give consideration to any appeals of individual companies ask-

ing relief because of the effect of capacity operation during the war. The effect of wartime drafting of married men and women, and drilling problems of the natural gas industry were among the problems considered. A number of post-war problems also came in for extended discussion.

P. U. A. A. Elects Spain, Makes Copy Awards



Thomas H. Spain

THOMAS H. SPAIN, advertising manager, Public Service Electric & Gas Co., Newark, N. J., was elected president of the Public Utilities Advertising Association at the annual meeting of that organization held June 24-25 at the Edgewater Beach Hotel, Chicago.

Other officers were elected as follows: first vice-president—Russell I. Seymour, Kansas City Power & Light Co., Kansas City; second vice-president—James V. MacDonald, Boston Edison Co., Boston; third vice-president—E. N. Pope, Carolina Power & Light Co., Raleigh; secretary—Waldo M. Wright, Amarillo Gas Co., Amarillo; and treasurer—Dale Remington, Wisconsin Public Service Corp., Green Bay.

Better Copy Awards

Awards in the P.U.A.A. Better Copy Contest were announced at the meeting by National Contest Committee Chairman E. N. Pope of Raleigh. Open to all operating utility companies in the United States and Canada, this year's event attracted a greater number of entries than usual. In addition to the increase in size, "the quality of advertising showed marked improvement," Mr. Pope reported.

Winners of national awards in 18 classifications of advertising were announced as follows: public relations (newspaper)—

Philadelphia Electric Co.; advertising supporting the war effort (newspaper)—Public Service Co. of Oklahoma; nutrition promotion—New Orleans Public Service Inc.; customer service (newspaper)—Portland Gas & Coke Co.; campaigns—Duquesne Light Co.; transportation company (newspaper)—New Orleans Public Service Inc.; employee magazine—Niagara-Hudson Power Corp.; employee newspapers—Cincinnati Gas & Electric Co.

Also, bill enclosures for residential customers—Potomac Edison Co.; direct mail

(residential)—Georgia Power Co.; direct mail (industrial and commercial)—Georgia Power Co.; special booklets—Duquesne Light Co.; window or inside display—New Orleans Public Service Inc.; outdoor advertising of all types—B. C. Electric Railway Co., Ltd.; radio—Duquesne Light Co.; annual reports to stockholders—Duquesne Light Co.; annual reports to employees—Portland General Electric Co.; motion pictures—Pacific Gas and Electric Company.

Certificates of award were presented to regional as well as national winners.

Pacific Coast Post-War Appliance Contest Winners Announced

WINNERS of the Post-War Appliance Contests conducted by the Pacific Coast Gas Association were announced June 24. Three separate contests were held, with a total of 409 entries, of which 155 were in the Women's Committee group, 114 in the sales department group, and 140 in the service group. Entries were received from eight of the Association's 13 gas company members.

Started originally by Gladys Warren, chairman of the Women's Committee, the contest created so much interest it was adapted by W. M. Jacobs, chairman of the Post-War Appliance Committee, to include sales and service personnel.

P.C.G.A. prizes totaling \$1,037.50 were awarded and, in addition, many participating companies offered additional prizes in preliminary contests. Following is a list of the principal prize winners:

Women's Committee Contest

- 1st \$100 War Bond, Phyllis Hopson, Southern California Gas Co., Los Angeles
- 2nd 75 War Bond, Helen A. Lenning, Southern California Gas Co., Porterville
- 3rd 50 War Bond, Mrs. Annabelle Vaughn, Portland Gas and Coke Co., Portland
- 4th 25 War Bond, Jane Stille and Ellen Scoular, Southern Counties Gas Co., Santa Monica



Jessie McQueen, A. G. A. home service counsellor, in the presence of C. A. Swigart, Pacific Coast Gas Association, draws "grab bag" prize winners in P.C.G.A. Women's Committee post-war appliance contest

Sales and Home Service Contest

- 1st \$100 War Bond, A. R. Maughan, Pacific Gas and Electric Co., Modesto
- 2nd 75 War Bond, H. M. Wilcox, Southern Counties Gas Co., Ventura
- 3rd 50 War Bond, L. O. Howell, Southern California Gas Co., Visalia
- 4th 25 War Bond, Dorothy Schwarz, Southern California Gas Co., Los Angeles

Service and Installation Contest

- 1st \$100 War Bond, B. H. Scott, Pacific Gas and Electric Co., Lodi
- 2nd 75 War Bond, A. L. McAlpine, Southern California Gas Co., Hanford
- 3rd 50 War Bond, Geo. Rusher, Southern California Gas Co., Los Angeles
- 4th 25 War Bond, John G. Nordin, Southern California Gas Co., Los Angeles

In addition to the above, merit prizes of \$10.00 in War Stamps and grab-bag prizes of \$2.50 in War Stamps were awarded to runners-up in each contest. The ideas submitted are being carefully examined and will be made the basis of a report.

CONVENTION CALENDAR

SEPTEMBER

- Sept. 22-23 Pacific Coast Gas Association Annual Meeting, Ambassador Hotel, Los Angeles, Calif.

OCTOBER

- Oct. 5-7 National Safety Congress Hotel Sherman, Chicago, Ill.
- 11-13 American Gas Association, Annual Meeting Jefferson Hotel, St. Louis, Mo.

NOVEMBER

- Nov. 29-Dec. 3 American Society of Mechanical Engineers New York, N. Y.

DECEMBER

- Dec. 6-10 National Association of Manufacturers Waldorf Astoria Hotel, New York, N. Y.



Accounting SECTION

L. A. MAYO, Chairman
O. H. RITENOUR, Vice-Chairman
O. W. BREWER, Secretary

Lengthened Work Schedule

By W. A. KELLY

Consolidated Gas Electric Light & Power Co. of Baltimore, Baltimore, Md.

THE past year has witnessed many developments in the manpower situation. Losses of employees to Selective Service are at an accelerated rate and the demands of the expanded industrial effort are exerting a stronger influence. Manpower is truly a scarce commodity; it must be fully and effectively utilized. Recent public announcements out of Washington, as well as private informational services, are stressing the need to redouble our efforts to make the most of the dwindling reserves and to seek and develop other sources. In the earlier stages we were inclined to think of a labor shortage in terms of tomorrow; an indefinite and comforting thought. Tomorrow is now here or is rapidly approaching. We must be more definite in our thinking; more positive in our approach.

Move to Conserve Manpower

"Lengthened Work Schedules" or more properly the "War-Time Work Week" has been in our planning for many months. It is a company-wide program undertaken as a cooperative measure to conserve manpower in the critical Baltimore area. As early as last fall Baltimore was designated for experimentation in manpower control. This experiment, which was a prelude to the recent "freezing of labor" order, was designed to prevent the pirating of labor which created heavy turnover between essential industries. These industries joined in a voluntary agreement to curb the practice by providing that no employee could change employers without first obtaining a signed release.

At the end of 1942 the labor market tightened noticeably. The losses to the armed services and the outlook for 1943 made it evident that normal work schedules no longer could be maintained. A study was made to develop the factors related to the application of an extended work week.

In our division the six-day week was made effective February 27. The Presidential directive was well timed from our point of view because it crystallized opinion on the subject.

The lengthened work week may appear to be a rather simple solution of manpower shortages. This is not true. Some important factors must be observed.

Presented at A. G. A.—E. I. Accounting Conference, Cincinnati, Ohio, April 27-28, 1943.

1. The cooperation of employees is a prerequisite. The program must be sold.
2. A tactful approach in dealing with employees is necessary to obtain the full benefits of the extended work hours.
3. Consideration must be given to the fatigue factor for work involving monotonous and repetitious operations or for jobs where the physical strain is a predominant element.
4. A six-day forty-eight-hour week is a restrictive schedule. It limits the free time available to employees for personal habits and private business dealings. Supervisory attitude must be reasonable in dealing with this matter.
5. Scheduling of work must be more precise because the lengthened work week makes the use of incidental overtime highly undesirable. All contingencies, including sickness, should be provided for to avert overtime in excess of the forty-eight-hour schedule.
6. Advance planning is necessary to effect full utilization of excess personnel through reallocation within the departmental unit, within the division or within the company. This involves a consideration of employee aptitudes and abilities, a careful selection of the job to be filled in relation to the individual and, in many cases, a good deal of selling. Employees' resistance to transfer will be encountered and must be overcome.
7. A transitional period is desirable to gauge the effects and results of the extended work hours. Initially, we extended the work week, where practicable, about two hours through the use of incidental overtime, then extended it to four hours, and finally to eight hours. This action, supplemented by supervisory contacts, also resulted in a measure of "mental preparation" by demonstrating the need for longer hours which was helpful in obtaining employee cooperation.
8. The effect upon operations and scheduling must be studied in quite some detail.

Our first approach was to prepare an inventory of manpower and to maintain it on a current basis. This inventory was a breakdown of employees by occupational classification and, after a detailed study, the projection by such occupations of the number of employees needed on the lengthened work week. We had previously prepared a schedule which displayed the male organization by age groups, dependency status, draft classification and the "timing" of induction on the basis of information secured from Selective Service Headquarters. The expected losses to Selective Service and estimated turnover for other reasons were offset against the manpower inventory to develop the probable manpower situation for our departments by calendar quarters.

In the fall of 1942 and before the labor market became acute we laid plans to anticipate our needs for the immediate future, within practicable limits, by the hiring of some personnel. This was a desirable preliminary step to provide the opportunity for the training required and to cushion the effects of a high turnover ratio.

Effect of 48-Hour Week

The effect of the forty-eight-hour week in terms of manpower was a somewhat disproportionate reduction in our requirements in relation to the increase in hours. A horizontal saving would produce a decrease in manpower of 16⅓% on the forty-eight-hour week. Actually, the decrease was 12%. This difference is attributable to the fact that certain jobs are not proportionately affected by the longer hours, including such positions as supervisory and staff personnel and other jobs where the number of employees engaged or the nature of the work does not permit full utilization. It follows that the cost of labor was proportionately increased so that instead of an 8⅓% premium on the basis of time and one-half for overtime, the premium was roundly 14%.

Labor hours are not always fluid. Instances developed where it was not practicable to transfer surplus personnel within the division to compensate for deficiencies which existed in other departments of the division. For this reason some departments are carrying slight

temporary excesses in personnel against vacation relief requirements which will not be allocated permanently until fall. Other departments within the division have developed deficiencies which must be absorbed by surplus personnel from other divisions of the company.

Considerable planning and study was required to develop a re-scheduling of the meter reading, billing, bookkeeping and collection routines.

The twenty-one-day reading cycle on the five-day week became a twenty-five-day cycle. Saturday schedules bear as much weight and volume as any other day. It was necessary to level out the number of meters read each day so as to read as many in six days as were formerly read in five days. Thus, there was a change in the meter books read by individual men. We immediately became involved with the speed and abilities of the individuals which required a substantial reappraising of the meter reading assignments.

In the Billing unit a complete new schedule and load factors had to be developed. This imposed a study of the characteristics of the new load through a detailed analysis of the various billing operations and time factors. The number of meters that can be billed in a day vary, often inversely with the number of meters that can be read. Consequently, the billing operations had to be coordinated with the meter reading and also with the bill distribution loads in order to balance out the manpower.

The changes in scheduling of the collection notice work and of the collections calls by the outside forces followed the pattern of the revised billing schedule. Other public contact functions such as meter turn-on and turn-off work, applications for service and the credit and collection inside contact forces were already on a Saturday schedule and did not require much additional planning.

It is not intended to overemphasize the factors associated with the transition to a full six-day forty-eight-hour week. It may be that we attempted to particularize needlessly. Yet, the individual operations of a commercial unit are varied and complex, each of which must be coordinated to form a smooth functioning organization. Personally, I think a major change in operating technique merits thoughtful and serious consideration and planning.

The future looks none too bright. Flexibility in thinking will be needed to cope with the dwindling manpower reserves. There remain many sources not fully explored, particularly a more extensive use of woman-power and the employment of part-time workers. To date the commercial group has been inconvenienced only; we have yet to face a crisis. The Customers' Activities Group must accept the challenge.

Plant Your Victory Garden for Gas House Heating Sales Today

By H. M. WOOLMAN, JR.

Jersey Central Power & Light Co., Asbury Park, N. J.



H. M. Woolman, Jr.

THE war, with its unprecedented demands for all types of fuel, has created a deluge of requests for gas heating. If it were not for Limitation Order L-174, gas heating sales in 1942 would have far surpassed any previous all-time peak. Prospects at our finger tips at

the cessation of the war will comprise a long list of customers upon whom we worked and who fully intended to install gas during the usual fall rush but were not permitted to do so due to L-174.

Keep Live Prospect List

Your salesmen undoubtedly have a complete list of these prospects along with some who actually purchased the heating equipment but were restricted from using it due to the order. Also on this prospect list, your salesmen have a number of prospects created, when Limitation Order L-79, prohibiting new oil burner installations, was instituted in May 1942. The above mentioned Limitation Orders caused the avalanche of requests for gas heating in the Fall of 1942. I sincerely hope that these requests were not answered with a curt "No," but rather a good explanation of why you refused them at that time; also, that the names and addresses were duly recorded, with the understanding that when this order was lifted, contacts would be made immediately.

Fuel Oil Journal reports that during the calendar year of 1941 oil burner permits throughout the United States totalled 322,000, of which 24,000 were issued in the New York Metropolitan area. Just think, 24,000 customers in one year in our area, have taken a step forward from hand-fired fuel to automatic oil fuel, and this figure is not total sales. Suburban areas where permits are not required will account for approximately 40% of total sales.

We should give considerable thought to these figures, inasmuch as oil burner users constitute some of our best prospects, as they have thrown away their coal shovels and have had a taste of the convenience of automatic heat. The average life of an oil burner is considered 10 years; therefore, we should keep a sharp eye on this replacement market. The fuel shortage and over-taxed transportation caused some oil

burner users to convert voluntarily to coal and others were compelled to do so. When the time arrives to re-convert, they will give considerable thought to the inconvenience of hand firing the old boiler and will look longingly around for the effortless heating formerly experienced. Where will the gas heating salesman be?

New homes, particularly the smaller type, will crop up as they did in 1941. As the consensus seems to be that about 90% of the new homes will be in the price bracket of \$3,500 to \$5,500, you will, no doubt, see prefabricated homes sold in increasing numbers. Many concerns today are laying the groundwork for prefabricated homes and are going so far as to sell them now for erection after the war. Some agencies have inaugurated home selling through department stores and the inquiries received and results obtained have been gratifying to them.

With the lower-priced home, we will face more basementless homes than previously experienced. The gas industry has the finest heating equipment available for this or any other type of construction, but the best material, poorly specified, is a detriment to future sales. Salesmen should have this point brought home to them in a forceful manner, for one poor installation will affect your future sales, not only in that development but developments to follow.

Air Conditioning Outlook

Air conditioning will be prevalent in the new home and here, too, we should encourage the owner to make sure the job is installed in accordance with the Gasco Guide or at least meet the requirements of the Minimum Code for Gas-Fired Winter Air Conditioning. Some of these homes will desire all-year air conditioning and, as manufacturers of gas summer air conditioning equipment have been promoting it over the past three years, they will be prepared to place on the market suitable equipment after the war.

Contact your architects, builders and manufacturers of prefabricated homes now, plant your Victory Garden of sales today, so you will reap a harvest when L-174 is rescinded.

When correlating your post-war plans, some thought should be given to the tenant; the fellow who never wants to own his own home, but who wants all of the conveniences possible. Also, you are faced with the home owner who wants Gas—the Perfect Fuel but who prefers to rent the equipment rather than purchase it. A rental plan, so designated that these people may purchase the equipment at any time, has its merits.

Presented at New York-New Jersey Sales Managers' Conference, New York, N. Y., June 18, 1943.



Residential SECTION

B. A. SEIPLE, *Chairman*
C. V. SORENSON, *Vice-Chairman*
J. W. WEST, JR., *Secretary*

Selling the Post-War Market

By ARTHUR P. HIROSE

*Director of Market Research and
Promotion*

"McCall's" and "Redbook" Magazines

AFTER the war, the gas appliance market will have two distinct parts. One will be the replacement market—selling ranges, refrigerators, water heaters and house heating equipment to existing homes. The other part will be selling these home appliances to new homes.

While it is true that when the war ends, there will be a pent-up demand for new gas appliances, certain steps can be taken now to insure proper selling of this market. To be sure, there is a manpower shortage now in the merchandising and sales departments of utilities. But would it not be a good idea to make a mail survey of residential customers now, attempting to find out what gas and electrical appliances each home now has, the year each major appliance was purchased and its condition—whether satisfactory or not? Too few utilities have had in the past accurate records of appliance ownership. Aren't such records a necessary step in post-war appliance selling?

New Home Prospects

The other part of the post-war appliance market will be made up of new homes. But this part of the market will differ from new-home markets before the war. It is expected that we will see new home building, after the war, on a giant scale in most territories. Each year, before the war, the United States fell behind in its new home building. During the war this scarcity has been accelerated. Many economists and business leaders feel that the one industry that can help us out of any possible post-war depression will be the home building industry. Some of this new home building will undoubtedly be in the form of pre-fabricated homes. In many cases the kind of appliances which go into these homes will have been decided upon in the factory. In other cases the appliances themselves will have been installed at the factory. Yet the local utility can do much to influence the choice of gas or electrical appliances in the kitchens and in the cellars of these homes. It will be important to work with local land developers, builders and their architects to make sure that proper appliances are installed in these new homes. It will be important not only for the market represented by the new homes themselves but also because of the effect that new homes have always had on

the appliance purchases of families living in old homes.

In both branches of the post-war appliance market—old homes and new homes—you can expect far more competition than ever existed before. This competition will be both national and local. It will be national in character because more manufacturers are coming into the home appliance business. The new competition will be local in character because all the old and the new manufacturers will be in a fight to get and maintain adequate local distribution.

Post-War Competition

Some of this local competition will affect the gas utility that merchandises. Some of this local competition will affect the utility even if it does not merchandise. Certainly, after the war, we'll see bitter local sales competition between the gas and electrical appliance people. To the straight gas utility, doesn't this indicate the necessity for the utility to act as the sales strategist for all dealers selling gas ranges, refrigerators, water heaters and home-heating equipment?

Acting as the local sales strategist for dealers in gas appliances means that the gas company sales manager will have to do local planning, for one thing.

That planning, I think, must embrace plans for promoting the all-gas kitchen. If the all-gas kitchen idea is not fostered locally, the increased pressure of the old and new makers and sellers of electric ranges, electric refrigerators, waste disposers, water heaters and automatic washers, will swing appliance buying too much toward the electrical side for your own comfort and for the good of your residential gas load.

Part of the planning which the local gas company sales manager must do for his community in the post-war market must involve sales training—sales training not only for the utility's own sales force but for the sales force of the local dealers selling gas appliances. Obviously, most appliance salesmen in the past have been the younger men who've gone into the armed forces or

into defense plants. After the war, the appliance business has the job of hiring a new crew of retail salesmen and training them for new conditions. The far-sighted gas company sales manager can do much to insure that gas appliance dealers get the cream of the new crop and see that they're trained properly to make profits for themselves and for the retailer.

There will be, after the war, a period in which women who have worn-out appliances will buy the first ones offered to them. But this lush period will be succeeded by a period of bitter competition. It will call for aggressive selling. The most aggressive appliance selling I know of—and that you probably know of—is house-to-house, appliance specialty selling. I insist that post-war sales competition will call for house-to-house selling. Not only will you have to fight off the dealers who have electrical appliances to sell, but you'll also have to fight off the automobile salesmen and the men who are offering all the consumer durable goods that were scarce or off the market during the war.

Home Service Sales Ally

One of your chief allies in selling after the war, as it is in the war period, will be your home service departments. Today, a well run home service department is helping women to use their ranges and refrigerators to meet the problems of war time living. The home service department today is showing women how to stretch meat, how to do home canning of food, how to dehydrate at home, if that is necessary. Home service women are showing customers how to take care of their priceless home appliances.

But after the war, your home service department can be of even greater sales benefit to you than it was in the pre-Pearl Harbor days. Remember, that each year the nation sees a crop of at least a million and a quarter brides. This year and last year many of these brides were not able to set up housekeeping. Many of them will have to wait until the war ends to have their own ranges and refrigerators. Many of them did no housework at home before they were married. Many of them don't know how to cook. Many of them have never made biscuits, even biscuits that were bullet-hard. They know nothing about ranges and refrigerators. Home service workers can help the new homemakers decide what kind of appliances they want

Presented at New York-New Jersey Sales Managers' Conference, New York, N. Y., June 18, 1943.

and how to operate the appliances after they've been bought.

Not only does selling the post-war appliance market call for more aggressive sales management, selling and home service. It will also call for more aggressive advertising and a new kind of advertising. I needn't point out to you that with a flood of new manufacturers into the electrical appliance business you are going to see more national and local advertising behind the electrical idea. My point is that a new kind of advertising will be necessary to sell the gas idea and gas home appliances, after the war.

The consumer has changed more greatly in the two years we've been at war than she has in any other comparable period. Some of you come from territories that have war plants. I needn't remind those of you who serve Paterson and other war centers that a large percentage of the workers in these plants are women. As a result of the war, women are getting an education in the use of machines and mechanical gadgets. This is an opportunity, if handled properly. No longer will the mechanism of appliances be a delightful mystery to women. Your woman customer of tomorrow will be an ex-war plant worker. Or she may be a woman who never worked in a war plant but had to cope with appliances when service men were off to war. Women in the post-war period will know, from their own personal experience, what constitutes quality in appliances and what doesn't.

Consumer Undergoing Change

This condition means that women will be more critical appliance shoppers in the post-war period. It means that they will want more information than has been necessary to give them before the war. Before the war, for instance, women paid little attention to guarantees of appliances. Or, if something did go wrong with the appliance, there was always the dealer and the utility to give repair service. The war has shown women that guarantees and service facilities differ. They'll want better assurance of the quality and construction of appliances—better assurance of the availability of unailing service. At the same time, women will be more impressed by the merits of a good gas range, for instance. Time will mean more to them. Temperature will mean more to them. Food-saving features will be a talking point they'll understand better after the war, because these women will have gone through a period of scarcity.

For local gas appliance advertising, this means more factual, more informative, more service-full advertising than most utilities did in the pre-war days. By this I don't mean you should throw out the window the emotional appeals of appliance selling. These appeals will always move the heart-strings of women, I hope. But the emotional theme will have to be backed up with an informative, factual story to do the most good.

Selling the post-war appliance market

won't be any bed of roses. Competition will be more severe and bitter than it was before the war. One reason will be that everyone, both the gas and electrical appliance retailers, will have new and vastly improved appliances to sell. I wish it were possible to predict that local trade conditions would be new and better, too. They will be new conditions, but they won't necessarily be better conditions. I wish I could honestly paint a picture of an orderly line of customers in your salesrooms, with money in their hands, waiting without pushing or crowding, to ask respectfully for the delivery of new gas appliances.

Instead, I'm afraid that there will be chiselling on discounts, allowances and prices. They'll be cut prices and excessive trade-in allowances, not the first day that post-war appliances are available, but certainly two days after the first post-war appliance is on the market. There will again be discount houses or a reasonable facsimile of the same. There will be friction between utilities and local dealers and the

utility sales manager will still know what a headache is.

But it's not a hopeless picture. We can have competition that paradoxically is regulated competition. Some responsibility rests with the appliance manufacturer, to be sure. Some rests with local distributors and jobbers. Some responsibility rests with local independent dealers. But it is also up to the utility sales managers to decide whether local appliance merchandising gets messy or keeps clean.

In the years before the war it was sales managers and salesmen, supported by advertising, that forced on the housewives of America the now unquestioned benefits of gas ranges, refrigerators and other home appliances. You will have that same opportunity after the war. Conditions will be different though. Competition will be greater, because the market opportunity will be greater. That puts up to the utility sales manager the responsibility for better thinking, better planning and better execution.

New York-New Jersey Sales Managers Meet



R. E. Williams

featured the meeting which was under the direction of A. H. Palmatier, chairman of the New York-New Jersey Gas Sales Council.

Williams Elected Chairman

R. E. Williams, sales manager, Binghamton Gas Works Co., was unanimously elected chairman of the Council for the next year. H. E. Dexter, vice-president, Central Hudson Gas & Electric Corp.; C. A. Kennedy, sales manager, New York and Richmond Gas Co.; and E. L. Fleming, general sales manager, Public Service Electric & Gas Co.; were elected members of the Executive Committee.

R. A. Malony, sales manager, Bridgeport Gas Light Co., led the discussion on "Holding Customer Good Will in Wartime" and presented a list of important items which should be considered by sales executives as a means of achieving this objective.

D. F. Conger, sales promotional adviser, New York Power & Light Corp., Albany, led the discussion on "Improvements Most Needed In Post-War Domestic Appliances"; Mr. Conger made a unique presentation of

the subject, utilizing a blackboard to outline various items under the topic and calling on those present to discuss each item.

H. M. Woolman, Jr., house heating and industrial supervisor, Jersey Central Power & Light Co., delivered an interesting paper on "Post-War Prospects for Gas House Heating" which is reproduced elsewhere in this issue.

F. M. Houston, manager, Domestic Sales Department, Rochester Gas & Electric Co., led the discussion on the use of Home Service Departments during the war period and reviewed the progress made by his organization in this work.

The guest speaker of the meeting was Arthur P. Hirose, director of market research and promotion, McCall's and Redbook magazines. Mr. Hirose delivered a stimulating and informative address entitled "Selling the Post-War Market" which appears in this issue.

J. P. Hanlan, gas sales manager, Public Service Electric & Gas Co., Newark, N. J., discussed the need for gas appliance standardization and installation methods.

It was unanimously voted to hold another meeting sometime during the late Fall.

POPULARITY PLUS

THE World Series has nothing on the wartime appeal of gas equipment! In Los Angeles recently a gas company announced that it would have 60 gas refrigerators to sell. Appearing on the scene at 9:30 the night before the sale were prospective customers who wanted to be sure to get one. Newspapers published photographs showing customers sleeping on the sidewalk outside the door.



Industrial & Commercial Gas SECTION

B. H. GARDNER, *Chairman*
CHARLES G. YOUNG, *Vice-Chairman*
EUGENE D. MILENER, *Secretary*

What's Become of the Steam in Steam Tables?

Third of a series of articles on the Future of Commercial Gas Appliances sponsored by the Food Service Equipment Committee of the Industrial and Commercial Gas Section. The first article on the gas deep-fat fryer appeared in March; the second on the portable gas fired baking and roasting oven was published in May.

By M. P. DUKE, *President, Duke Manufacturing Co., St. Louis, Mo.*

IN restaurants, war plant cafeterias, hotels and other places where large numbers of people eat, it is not enough to merely prepare good, hot, nutritious food. Prepared food to remain good and nutritious must be kept hot or warm; and it must be kept warm for periods of time ranging from a few minutes to several hours.

Everyone is familiar with the conventional steam table in restaurants with its array of pots and pans for different vegetables and soups, and its covered pans for meats. Almost everyone has also seen the steam escaping around the edges of the containers and spreading into the atmosphere. All operators know the unsanitary water pan to a steam table must be drained and washed often. The need for a change and improvement has resulted in new types of food warmers which not only say goodbye to the steam in the steam table but have many advantages not previously employed in food warmers.

What are the important points of food

warming and how do they affect the requirements for gas-heated food warmers? Different foods should be kept at different temperatures, some as low as 125°, others 145° to 212°. For instance, certain vegetables can be grouped and they should be kept at one temperature. Roasts and other meats should be kept at a different temperature, and soups should be kept at the highest temperature of all.

So much for the food. There is another requirement that is important. The amount of heat given off from a warmer should be an absolute minimum, and there should be no steam or other moisture escaping into the surrounding air.

A close study of these basic requirements of food warming indicated that they were not being fully met by conventional steam tables. Steam tables with a water pan do not allow for zoning the temperature for the three different classes of food mentioned above. They give off too much heat and they frequently exhaust steam into the cafeteria or kitchen atmosphere. This can all be traced to the use of hot water and steam

as heat-conducting media, which requires larger gas inputs, to poor insulation, and the fact that all the food containers are heated from the same body of hot water and steam.

Studies, instigated some seven or eight years ago, caused the question to be raised whether hot water and steam were really necessary in food warmers. These studies strongly pointed to the conclusion that food warmers should be constructed to operate directly from the heat produced by burning gas, without any steam or hot water whatsoever. As a result, in the Fall of 1938, we developed a food warmer without a water pan, which has since been named the "Thurmaduke" and which has proven to have many advantages over conventional steam tables.

Among these advantages were: (1) quicker initial heating; (2) considerably lower B.t.u. input; (3) possibility of zoning the temperature for the different classes of food; and (4) no moisture given out into the surrounding atmosphere.

What do these advantages mean to the

M. P. Duke



Small gas Thurmaduke dry food warmer for medium sized lunchrooms

Right—Eighteen burner gas-operated Thurmaduke in Wigwam Cafeteria, Royal Oak, Michigan. Zoned for temperatures to suit each food being served



restaurant operator? (1) Quicker initial heating combined with no need for cleaning, changing or refilling the water pan is a time saver in any food-servicing establishment. (2) Considerably lower B.t.u. input and insulation means that there is less heat loss into the surrounding atmosphere, thus adding to the comfort of attendants and reducing the summer air conditioning load. (3) Zoning the different classes of food at the exact temperature each requires enables the owner to serve more tasty food, without the loss of vitamins, and to conserve food that might otherwise be spoiled because of overheating. (4) There being no moisture to escape, the comfort of the attendants is increased and the summer air conditioning load is further reduced.

Fortunately it has been possible to interpret all of these advantages into thoroughly satisfactory dry food warmers. Hundreds of installations have been made in restaurants, lunch rooms, cafeterias and other establishments in every part of the country, and the reaction of owners has been uniformly enthusiastic. Not only have the users enjoyed all of the advantages listed above, but they have been particularly pleased with the great economy of operation shown. On the average it has been found that the saving in gas consumption averages from 65% to 75%.

The ability to serve each different food at the exact temperature at which it should be served is a great advantage to any hotel or restaurant, because the more appetizing and palatable the food, the more satisfied patrons and repeat business.

From the standpoint of the gas industry the successful development of the dry food warmer holds much for the future. Not only has the conventional steam table been undergoing a critical re-examination by the food service industry and some of its characteristics been questioned, but food warmers using other forms of energy have for the first time appeared on the market. To meet these changed conditions, and to keep gas ahead in the food warmer field, it was necessary that something new be added to what the gas industry had to offer. The Thurmduke has proven its ability to meet this challenge as an ally to the gas industry.

The future is bright. Whether it is a small lunch room that requires only four insets and one meat pan or the largest industrial cafeteria serving many thousands of people three times a day, this new gas appliance will give the advantages which modern food service demands of the food warmer. The owner as well as the gas company will benefit more and more as time goes on.

The Iron Age, January 21, 28 and February 4 by J. K. Stanley under the title of "Steel Carburization and Decarburization—A Theoretical Analysis."

This series is for the industrial heat treaters. It affords an understanding of the physical-chemical principles which govern the equilibria involved in commercial carburization. They control the rate of diffusion of carbon as well as its devastating opposite, the loss of carbon, which we call decarburization. Not only is this series of three papers a valuable theoretical analysis on the problems of carbon in steel, but it helps in the understanding of the behavior of steels during heat treatment in general.

In the up-to-the-minute reading outlined above, the emphasis has been on the new, but we would be remiss if we did not also remember the past. If any gas company has not yet seen and studied the Army fuel consumption studies of 1941 and 1942 which were issued by Lt. Col. McCabe of the Office of Chief Engineers of the U. S. Army, and his associates, Professor Konzo of the University of Illinois, and Mr. Biller, associate engineer of the U. S. Army Repairs and Utility Branch, they have indeed missed much.

Gas Use in Army Camps

The problem of allocating fuel supplies to hundreds of Army camps in adequate quantities and at the proper time led to these studies, which report the field results obtained at 10 Army camps on a great number of buildings for an entire heating season. The unit figures for various fuels and appliances so obtained will be the basis of fuel selection factors with which the gas industry will have to be thoroughly familiar not only for the present needs but probably for many years to come. Fortunately, the gas data are rather favorable although further studies may reveal that the figures are somewhat high in so far as cooking is concerned. The American Gas Association has a committee which is studying these matters, but their report will take some time to complete and, in the meantime, these Army fuel data should be in everyone's hands. They were published in a number of places, among which might be mentioned the A.S.H.V.E. Journal Section of *Heating, Piping and Air Conditioning* for January, 1943, page 38.

The crop of fine material that appeared in the early months of 1943 is too big to summarize completely in this short space, but each month the most interesting items will be featured here. So, for the first appearance of this column, we cannot do more than touch the high spots.

The details of combined firing of cold natural gas on stoker-fired units deserve thoughtful study not only as a conservation measure but to see that every big boiler job is running at maximum efficiency. The Transactions of the A.S.M.E. published April, 1943, beginning on page 137, include a fine article on the pertinent subject.

Writing of topical and pertinent things,

HAVE YOU SEEN IT?

EVEN war censorship can not conceal completely the tremendous amount of valuable new engineering information published every month which will soon become an every-day part of our working knowledge. Some of the more interesting news lifts the corner of the curtain so that we can see future developments—not merely the speculative visions of post-war life but practical developments which are already in use but which are restricted for the time being.

A good example is the gas turbine locomotive which was recently completed by Brown, Boveri & Company for the Swiss Federal Railroads. This is probably the first thoroughly successful commercial gas turbine power unit in which the excess of useful power produced over that required to compress air is sufficiently great to make the over-all economy competitive with conventional power units. As a matter of fact, many of the previous gas turbines never would produce enough useful energy to overcome the compression requirements. But, before the gas industry gets too excited over this report by P. R. Sidler before the A.S.M.E. and published in "Mechanical Engineering" in April, 1943, starting with page 261, it should be borne in mind that the fuel of this gas turbine is oil. That, however, does not detract from the significance of the development. This gas turbine develops about 18% thermal efficiency which is considerably lower than

that produced by the Diesel engine, but other advantages make this new engine attractive on an over-all basis. We are sure to hear more about it.

Whatever the future outcome of these new ideas, our primary concern is the present. Among the crop of fine new things for immediate use are the direct firing gas burners used without mufflers, fire tubes or, in most cases, even saggars for kiln firing of ceramics. Not heralded as any panacea, nevertheless, the results of a number of different installations show that direct radiant gas firing applied to the roof or wall offers advantages for many different heat applications. An excellent exposition of the principles involved and the details of the burner units needed for this method of gas firing are found in the paper by Harry W. Smith, Jr. and J. A. Ehlinger presented before the 44th Annual Meeting of the American Ceramic Society and reprinted in the *Journal of the American Society* for April 1, 1943, beginning on page 132.

Not everything can be new or startling. There are many times when the industrial gas engineer would do well to reach back for his text books to review the sciences with which he deals. One of the most complex of these is the heat treatment of steel, and there have been many new things which research and practice have revealed in the last few years since most of us left school. Therefore, it is a real refresher to review the series of articles appearing in

there seems to be great interest in the drying of foods, and industrial gas men everywhere are being asked questions about it. A general story is available in a special section in the December, 1942 issue of *Heating, Piping and Air Conditioning* under the title of "Drying of Foods." The references in this report include available Government publications which should be in the hands of gas engineers dealing with this problem.

In this column, material which is delivered before Association conventions and section meetings and which appear in *Industrial Gas* or in the usual gas trade press will be rarely touched upon because these papers and articles are so generally available and so carefully read that it would be a most unusual item that escaped attention. But, the other periodicals and the meetings of other organizations may not be so accessible to the gas engineer, and it is these which will be primarily covered in this column.

C. GEORGE SEGELER

Robertshaw Charts for Restaurant Employees



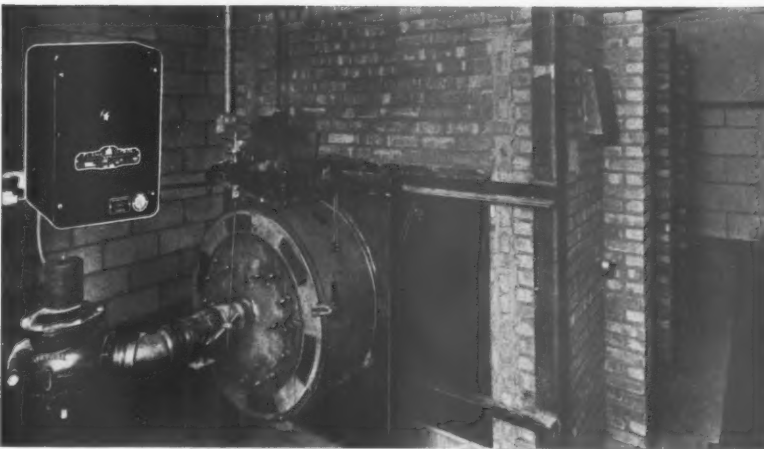
Walter D. Crouch

THE Commercial and Industrial Division of Robertshaw Thermostat Company, under the direction of Walter D. Crouch, manager, has announced five new wall charts to help teach new employees of restaurant, hotel, and institutional kitchens how to save gas, fuel, and food by the proper use of commercial gas appliances that are thermostatically controlled. A notice to the trade of the availability of these new wall charts is contained in five leading commercial food service magazines. These magazines are: "Institutions," "Modern Hospital," "Journal of the American Dietetic Association," "Chain Store Age," and "Hotel Bulletin."

The charts are designed to give immediate help in those commercial kitchen problems that involve ovens, steam tables, deep fat fryers, and coffee urns. It is pointed out that the installation of thermostats has been made to take the guess-work out of quantity cookery and the charts are designed to help teach inexperienced employees to cook well and economically by operating thermostats correctly.

It is a well-known fact that, with the use of proper temperatures, uniformly maintained, commercial kitchens will get more servings from roasts, by reducing meat shrinkage. This has always been important but is more important now that meat shortages are a reality. Also, baked goods maintain higher quality when oven temperatures are correctly maintained. The same holds true with foods cooked in deep fat fryers,

Gas Used in Food Dehydrating System



Powerful gas burner with full automatic and safety controls used in an egg dehydration plant. Food dehydration is essentially a heating process and modern industrial gas equipment has been engineered into many of the better installations. (Photo courtesy Wheelco Instrument Co.)

with coffee brewed in urns and with cooked foods being kept in steam tables prior to serving.

Each of the five new Robertshaw charts are printed in two colors and those who have examined them state that they are written in the language of the men and women who cook your food on the days you step out to dine in a hotel or restaurant.

Industrial Advertising

NATIONAL advertising of the A. G. A. Industrial and Commercial Gas Section, will appear in two publications during July. *Business Week* for July 10 will carry a two-thirds-of-a-page advertisement built around the theme, "Air-conditioning with Gas safeguards the precision manufacture of bomber parts." The July issue of *Industrial Heating* will feature a full-page display captioned "This machine gun has 286 parts—many heat-treated with Gas!"

Two Good Men and True

AT the 10th Annual Dinner in Chicago held recently by the Food Service Equipment Industry in connection with its Wartime Conference, special tribute was paid by the program committee to the memory of Clarence H. French and William J. Hill. Clarence French and Bill Hill are remembered by many industrial and commercial gas men as the two live wires who did much initially to promote heavy duty gas cooking and baking in the hotels and restaurants of the United States and Canada.

Bill was for many years heavy duty sales manager of Detroit-Michigan Stove Company, and Clarence held the similar position with Standard Gas Equipment Corporation. Friendly competitors—who worked together in the A. G. A. for the good of the industry.

Commercial Cooking Equipment Defined

AN important clarification of Limitation Order L-182 was made by the War Production Board on June 5 when it defined commercial cooking and food and plate warming equipment as follows:

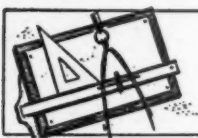
"Commercial cooking and food and plate warming equipment" means equipment (except equipment specially designed to use electricity as the heating agent) designed for the heating of kitchen utensils or plates, or for the cooking or baking of food for consumption or sale on the premises in which the equipment is located. It includes, but is not limited to, such items as bakers, broilers, fryers, griddles, grills, hot plates, ovens (except built-in types), ranges, roasters, steamers, toasters, urns and warmers, but does not include cooking appliances for household use."

Barney Olson Dies

BARNEY OLSON, president, Barney Olson, Inc., 122 South Michigan Avenue, Chicago, engineers and distributors of industrial gas machinery, died the first part of June.

For many years Mr. Olson was an active member of the American Gas Association and served on several committees of the Industrial and Commercial Gas Section. Prior to his organizing Barney Olson, Inc., which concern is national distributor for industrial gas products of National Machine Works, he had an extensive career in gas house heating, having been connected with the Bryant Heater Company and other manufacturers.

Mr. Olson was well known in national, industrial and commercial gas circles. His company will continue to function as national distributors for National Machine Works.



Technical SECTION

HAROLD L. GAIDRY, *Chairman*
CHARLES F. TURNER, *Vice-Chairman*
A. GORDON KING, *Secretary*

Production and Chemical Conference Rivets Attention on New Operating Methods

APPROXIMATELY 400 gas engineers and chemists attended the annual Joint Conference of the Gas Production and Chemical Committees which climaxed a year of unprecedented operating problems originating from the war. At the two-day meeting, May 24 and 25, in the Hotel Pennsylvania, New York City, these men made every effort to clear up operating difficulties and to increase the gas indus-

try's already large war contribution.

E. W. Zimmerman, Gas & Fuel Associates, Everett, Mass., chairman of the Gas Production Committee, and T. L. Robey, Washington Gas Light Co., Washington, D. C., chairman of the Chemical Committee, presided at the conference.

Much valuable information was developed at the series of round-table luncheon meetings which were a highlight of the conference. These were divided as follows: Water Gas Operation—P. T. Dashiell, The Philadelphia Gas Works Co., chairman; Chemistry in the Gas Industry—Dr. F. H. Dotterweich, Texas College of Arts and Industries, chairman; Coal Carbonization—A. C. Sedlachek, Philadelphia Coke Co., chairman.

The vital importance of gas production to the conduct of the war and the maintenance of our civilian economy was emphasized in the opening address by Ernest R. Acker, chairman of the A. G. A. Committee on War Activities. He congratulated the operating men on their part in filling the record gas demands of the past winter and reviewed the various government pro-

posals, particularly those covering alternate oil supplies for the gas industry.

Referring to the new price schedules for blended oils announced by OPA, Mr. Acker said: "These price schedules were obviously intended as an inducement to the oil industry to produce less gasoline and more fuel oil. In the opinion of many, this represented a logical move from the standpoint of oil supply even though it will result in increased cost of operations to the gas industry. Unfortunately, there appears to be no possibility at this time of securing price concessions, subsidies, or rate increases to offset the effect of increased costs of gas-making materials. The best that can be said is that the move represents a step in the right direction, and that it will probably obviate the necessity of going to the more extreme and hazardous measure of substituting gasoline for other enrichment oils."

The oil situation remains critical, according to government officials, Mr. Acker said, but steps are being taken to clear up the uncertain conditions that prevailed last winter. "The Office of War Utilities,

Below—T. L. Robey, Washington, D. C., chairman, Chemical Committee, and O. K. Smith, Davenport, Iowa



Right—Post War Planning Committee. Left to right: C. V. Sorensen, A. M. Beebe, chairman, Hall M. Henry, R. E. Ginna, C. R. Bellamy, R. J. Rutherford, J. W. West, Jr.



Below—E. W. Zimmerman (seated) chairman, Gas Production Committee, Everett, Mass., listens to D. S. Reynolds, Boston, Mass., discuss two-shell water gas sets



Left to right: H. L. Gaidry, chairman, Technical Section; H. S. Lipp; Alexander Forward; Walter D. Binger, chairman, National Technological Civil Protection Committee; E. W. Zimmerman; W. Cullen Morris, chairman, Luncheon and War Conference; T. L. Robey; F. M. Banks; E. Holley Poe, director, Natural Gas and Natural Gasoline Division, PAW; S. J. Beale, New York, and Morris Kaplan; War Manpower Commission





Left to right: H. L. Gaidry, chairman, Technical Section; S. P. Cobb, New York; Linn Edsall, chairman, Committee on Operation of Public Utility Motor Vehicles; L. E. Knowlton, Providence, R. I.; Louis Shnidman, Rochester, N. Y.; L. G. Crenshaw, Elizabeth, N. J.; Arthur L. Smyly, Chicago; Victor Starzenski, Troy, N. Y.; J. D. Alden, Asbury Park, N. J.; A. S. Hall, Springfield, Mass. Below right—Chairman Zimmerman blowing smoke through a filter to demonstrate a point in Dr. Vandaveer's paper on "Gum Protective Devices for Gas Appliances"

through the American Gas Association, has obtained quarterly estimates of the oil requirements of the water gas companies in Districts 1 and 2 for that period, and is negotiating with the Petroleum Administration for the definite allocation of the required quantities to the gas industry. The discussions are based on the assumption that, in view of such allocation, the industry will agree to accept any oil within reasonable A.P.I. gravity limits which the Petroleum Administration for War may allocate. . . . It seems probable that the gas industry will be asked to use lighter oils than at present, probably the middle distillates with a maximum A.P.I. gravity of 24 and a minimum of 16, the heavier oil being made available to operations in which the question of by-product recovery is important to the war effort."

sidering for post-war attention. The American counterpart was presented later in the program when the A. G. A. Post-War Planning Committee reviewed its activities to date.

D. S. Reynolds, vice-president and chief engineer, Boston Consolidated Gas Co., Boston, Mass., described the two-shell water gas sets at the Everett plant, giving valuable operating details. Two sets were



Prof. F. H. Dotterweich, Kingsville, Texas, chairman, Chemical Luncheon Conference and Dr. Gilbert E. Seil, Norristown, Pa.

J. V. Postles, Philadelphia, Pa. and A. M. Beebee, chairman, A. G. A. Committee on Post War Planning



A. C. Sedlacek, Philadelphia, presiding at the Coal Carbonization Luncheon. Above P. T. Dashiell, Philadelphia, chairman, Water Gas Luncheon and R. Van Vliet



Wm. L. Glowacki, Pittsburgh, Pa., and W. O. Keeling, Pittsburgh, Pa.

Prior to Mr. Acker's address, Alexander Forward, managing director, American Gas Association, extended his greetings to the conference and listed technical operating problems the British gas industry is con-

installed in 1940 and two more in 1942. According to Mr. Reynolds, a two-shell machine consists of a standard generator and a gasifier, which combines the functions of the carburetter and superheater in a single shell. The carburetter is the lower portion of this shell, and the superheater is the upper. The machines are constructed with back-run and for gas oil operation, but provision is made for future heavy oil equipment.

Louis Shnidman, Rochester Gas & Electric Corp., Rochester, N. Y., presented a complete, illustrated story of the development of a portable carbon monoxide apparatus for the rapid determination of traces in various atmospheres. The apparatus is based on the reaction of carbon monoxide with iodine pentoxide liberating iodine which was then determined. It was stated that the apparatus can be used in



Alexander Forward, managing director, A. G. A., and Ernest R. Acker, chairman, Committee on War Activities (right foreground)

concentrations as high as 2500 parts per million of carbon monoxide. Results within 5 per cent of the true carbon monoxide content of the gas being analyzed were obtained, Mr. Shnidman said. It was also indicated that a lower limit of .2 parts per million of carbon monoxide has been established for this apparatus. Lively discussion followed the presentation of this paper.

The morning session concluded with a report on the A. G. A. Laboratories' investigation of "Gum Protective Devices for Gas Appliances," by Dr. F. E. Vandaveer and M. T. Zare of the Laboratories' staff. This report is published in full elsewhere in this issue.

Luncheon Meetings Popular

The entire afternoon was devoted to the round-table luncheon conferences listed above. These proved so popular that it was necessary to make last minute changes to accommodate the over-flow. Discussions of individual operating problems featured these meetings.

Speaking at the Chemical luncheon conference on "Water Purification by the New Ion-Exchange Method," O. K. Smith, United Light & Power Co., Davenport, Iowa, said there had been considerable progress made in this field in the past few years. He described the development of new exchange materials which have produced a great deal of flexibility in purification methods. "These new methods of water purification," he said, "hold great promise for the future. The fact that complete demineralization can be accomplished without a remaining neutral salt opens up great possibilities for use in chemical, power, beverage, ice and dye plants, as well as numerous other industries."

Other speakers at the Chemical meeting included Reginald L. Wakeman, Mellon Institute of Industrial Research, on "Plastics"; E. W. Guernsey, chairman, Organic Sulfur Subcommittee, and A. R. Powell, Koppers Co., on "Organic Sulfur"; and E. Holley Poe, director, Natural Gas & Natural Gasoline Section, Petroleum Administration for War, on "Gas and Petroleum Developments."

At the luncheon conference on Coal Carbonization, J. D. Davis of the Bureau of Mines, presented a paper on the comparative yields of light oil, tar and constituents from carbonizing tests at 800°, 900° and 1000° C. Another feature of this meeting was a discussion of the effect of paraffin on the nitration of toluene by W. M. Glowacki of the Mellon Institute of Industrial Research.

A preview of the over-all program of the A. G. A. Post-War Planning Committee was given the delegates at the post-war symposium which opened the second day's program. A. M. Beebe, chairman of the committee, outlined the major objectives of the committee and introduced the chairmen of the four basic studies into which this activity has been divided. C. V. Sorenson, Northern Indiana Public Service Co.,

Hammond, spoke on "Post-War Purchasing Power and Potential Markets"; R. J. Rutherford, Worcester Gas Light Co., and R. E. Ginna, Rochester Gas & Electric Corp., discussed different factors affecting the realization of the potential markets, such as the post-war fuel supply and competitive conditions; Hall M. Henry, NEGEA Service Corp., dealt with economic and engineering aspects of the post-war situation; Walter C. Beckjord, Columbia Gas & Electric Corp., in a brief report read in his absence by Mr. Beebe, outlined the "Effects of National Planning and Trends." The presentation gave an impressive picture of new horizons which will open up for the gas industry after the war.

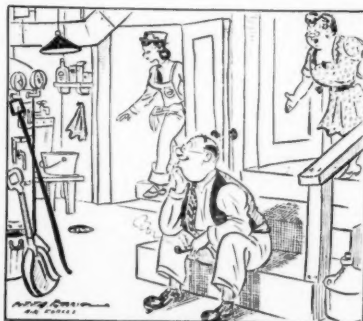
Dr. G. E. Seil, E. J. Lavino & Co., Philadelphia, summarized the results to date of X-ray diffraction studies of iron oxide used in dry box purification.

Natural Gasoline Enrichment

W. O. Keeling, Koppers Company, Pittsburgh, spoke on "Natural Gasoline Enrichment of Produce Gas for Use in Underfiring Recuperative Type Solvay Ovens." He described an installation at the Milwaukee Solvay Coke Company devised to release coke oven gas for peak load purposes. The unit was put in operation December 15, 1942 and continued in operation with highly satisfactory results until April 1 of this year when the need for peak load gas no longer existed.

Judging from the results obtained, Mr. Keeling reported, "natural gasoline is a suitable carburant for cold carburetting air or a low B.t.u. base gas to a mixed gas having heating values of between 300 and 1,000 B.t.u.'s per cubic foot where the specific gravity of the carburetted gas is of minor importance and where the gas will not be preheated to temperatures sufficiently high to crack the gasoline hydrocarbons prior to combustion." Such a cold carburetted mixed gas will have a low dewpoint, he said, if the heavy components of the natural gasoline are separated from the lighter components prior to the carburetion step.

A noteworthy feature of the installation, Mr. Keeling noted, was the fact that it was



"I never knew you to be interested before in waiting around for the gas meter reader." (Reprinted from Public Utilities Fortnightly.)

constructed of non-critical materials, mostly taken from the scrap heap. The total cost was less than \$60,000.

E. E. Witham and J. H. Long, Gas Department, Philadelphia Electric Co., contributed a joint paper describing the operation of underfiring a coke oven battery with refinery oil gas as carried out at Chester, Pa., since October 1942. The coke oven battery consists of 25 ovens having a coal capacity of 13.23 tons each. The burning of refinery oil gas under the ovens resulted in an increase in capacity of 3,910 M cu.ft. per day and entailed no new investment except for a calorimeter and small piping change. The present operating saving amounts to \$25,000 per year, the authors stated.

In reference to the application of this system to other plants, Messrs. Witham and Long reached these conclusions:

"As the use of oil gas for underfiring has definitely proven advantageous to Philadelphia Electric Company both as regards operating savings and the realization of maximum gas output from existing equipment, the applicability of the system to other locations should be considered. Refinery oil gas is not universally available, but it is probable that after the war appreciable quantities of propane, butane and natural gas will be obtainable in many parts of the country. In fact, after the Chester battery was converted to refinery gas, propane was used for the heating of an underjet battery at the Henry J. Kaiser coke oven plant at San Bernardino, California.

"Underfiring with any gas which can be purchased at a suitable price, but which is not suitable in an unprocessed state for distribution to customers, merits consideration. Additional peak gas for sendout is made available without the necessity of additional generating investment; or, if the coke market is not favorable, additional gas for sendout can be produced without the necessity of increasing coke production."

Silicon Carbide Linings

Silicon carbide solid linings for water gas generators were discussed in a report by A. S. Hall, Springfield Gas Light Co., Springfield, Mass., who evaluated various installations. There are now more than fifty plants, each with from one to five water gas sets, using silicon carbide solid linings, Mr. Hall said.

"Extended experience," he said, "has shown that silicon carbide linings largely eliminate clinker adherence, thus keeping the grate area relatively unobstructed; permit easy and rapid removal of the small amount of clinker that may develop, so that the units may be operated from 22 to 23 hours daily with increases reported as much as 15 to 20% in make; and under some conditions as described by R. J. Horn in the A. G. A. MONTHLY for June, 1942, 2½" thick tongue and groove silica carbide linings may be used in place of ordinary 4½" silicon carbide circle brick with pro-

portionate enlargement of grate area and gas capacity. As for shutdowns for relining, silicon carbide outlasts firebrick around six to one." Other important considerations, Mr. Horn pointed out, are their inertness to the inferior fuels often used under present conditions, and their resistance against the abrasion of the increased amounts of ash from low grade fuels.

The concluding feature was a special luncheon and war conference with W. Cullen Morris, A. G. A. representative on the National Technological Civil Protection Committee, acting as chairman. Among the distinguished speakers at this meeting, which was off-the-record, were: Commissioner Walter D. Binger, chairman, National Technological Civil Protection Committee; Morris Kaplan, Legal Division, War Manpower Commission; S. J. Beale, general manager, West Gas Improvement Co., New York; F. M. Banks, vice-president, Southern California Gas Co., Los Angeles; Messrs. Poe, Beebe, and Forward. Subjects discussed ranged from civilian defense operations and manpower problems to British experience and the Chicago holder accident.

A. G. A. POST-WAR PLANNING

(Continued from page 290)

cover all those factors that are available to the industry for lowering production costs so that companies not using newer fuels or methods may do so.

B. Effect of Larger Sendouts on Costs.

The thought here is that we ought to bring to the attention of the industry what would be the cost to make additional quantities of gas in excess of those now being produced in a given situation. This study would be undertaken in those companies that have had substantial increases in sendout over a period of years. The effect of these larger sendouts will be studied from the following angles:

1. Fuel Costs
2. Labor Costs
3. Maintenance
4. Purification
5. Residuals

C. Research.

An attempt will be made to discover the most promising new processes for lower production costs and from these to select one or more for intensive research. This would be broken down into two or three steps.

a. Gas Institute of Technology Proposal

The Gas Institute of Technology has several promising gas research projects which should be studied by the industry and, if found promising, be considered for more intensive research and development.

b. Promising Projects Advanced over Past Years

A study of the different processes which have been suggested for research over the past ten to fifteen years will be undertaken by the Technical Section of the American Gas Association in the following manner:

1. A list of these processes
2. Statement of the claimed advantages
3. Statement of the probable disadvantages
4. Statement of the known operating difficulties
5. Statement of amount of research done on these to date.

The most promising ones to be considered for research.

c. Suggested Research Projects from the Technical Men of the Industry

The thought here is that some of the men in the industry may know

of some processes which have not been written up but which offer promise and should be considered from a research angle.

1. Upgrading of low B.t.u. gases.

This question should be carefully considered by the Post-War Planning Committee along with the other items listed above.

D. Peak Load Equipment.

We should determine the most economical way of obtaining peak load production of gas and in connection with this the following might be investigated:

1. Use of liquefied petroleum gases
 - a. Air-gas mixture with city gas
 - b. Reform in the water gas set
 - c. Cold enrichment
 - d. As regular enriching fuel in place of oil

(Continued on next page)

Gas Chemists'

BOOK OF STANDARDS FOR LIGHT OILS AND LIGHT OIL PRODUCTS

By V. J. ALTIERI

Chief Chemist, Eastern Gas and Fuel Associates, Boston, Mass.

Volume xiii, 352 pages

Published by the American Gas Association

\$3.50 to A. G. A. Members

\$5.00 to Non-Members

Reviewed by W. T. Read, Dean, School of Chemistry, Rutgers University, and author, Industrial Chemistry.

THIS book is a timely and valuable contribution to the technical literature. The demands of war industries manufacturing explosives, motor fuels, synthetic rubber, plastics, dyes, pharmaceuticals, and many pure chemicals make very necessary a compilation of standards for light oils and light oil products. The entrance of the petroleum industry into the field by virtue of syntheses of aromatic hydrocarbons still further increased the need for such an authoritative text.

The author has not only had the advice and constructive criticism of a number of able and experienced men in the gas and petroleum industries, but has had the assistance of several chemists in testing the methods included in this book of standards.

The usefulness of the book has been increased by the adoption with their permission of the format of the A.S.T.M. Book of Standards.

Included are standard specifications, definition of terms, both complete and abridged methods for testing light oils and light oil products, and full directions for sampling. The appendix contains special micro methods, federal, army, and navy specifications, and a variety of useful tables, graphs, and data. Each section carries a number of references to books and journals, including some British publications, and there is a complete bibliography. The index is clear and ample.

The type and makeup of the book are attractive and the illustrations and graphs are excellently done.

Representing an almost unbelievable amount of work in compilation and testing, this book meets an immediate need, particularly when there is so little time for training new workers, and renders a very real service in the common war effort.

2. Three minute cycle
3. Use of Oxygen
4. Any other methods that might be suggested

E. Bring Up-to-date Perry Gas-Making Research Study

In 1930 a study was made of a number of so-called promising gas-making innovations. The study disclosed the then known advantages and disadvantages of these promising projects. It would seem advisable to restudy these projects in light of the developments since 1930.

Shortcomings of Our Existing Appliances and New Developments

This committee is charged with the responsibility for determining the shortcomings of our existing appliances from the standpoint of meeting post-war competition and to determine what new gas appliances should be made available to satisfactorily meet our post-war market.

This committee proposes to function somewhat along the following lines:

A. Survey of Shortcomings of Existing Appliances through

1. American Gas Association Home Service Committee
2. Appliance Committees in regional associations.
 1. New England Gas Association
 2. Midwest Gas Association
 3. Pacific Coast Gas Association
 4. Indiana Gas Association
 5. Metropolitan Air Conditioning and House Heating Council
 6. Southern Gas Association
 7. Other gas associations
3. Manufacturers of equipment.

B. New Developments.

Here again, through the various regional associations, attempts will be made to discover what new developments should be undertaken to meet post-war market needs. In this connection the New England Gas Association has a subcommittee investigating the desirability or non-desirability of combining in one appliance water heating and cooking or water heating, cooking and kitchen heating. Undoubtedly similar developments will be forthcoming from other regions and through individual initiative of the gas company employees.

C. Action on the above.

In addition to determining the shortcomings of existing appliances and what new developments are desired, this committee will also endeavor to bring to the attention of the proper parties the recommendations of this committee and to obtain suitable action on its recommendations.

(d) The Effect of National Planning and Trends.

Walter C. Beckjord, *Chairman*
Columbia Gas & Electric Corp.
New York, N. Y.

This phase of the program will study those general economic developments of a general social nature, such as Government planning, etc., which may affect our markets and our ability to realize the potential market developed by Mr. Sorenson's activity. In other words, Mr. Beckjord's Committee will be engaged in reconnaissance work to determine what other factors may affect the present battle scene and which may not immediately be involved in the battle.

This activity will of necessity have to be reported on later, as conditions develop.

Summary

From the above I think you can appreciate that our program is a very far-reaching one, and when the committees have finished their studies, the results should be some fundamental building blocks on which post-war planning can be safely and wisely built. In other words, after these studies are finished, we can then consider the type of sales activities and policies, dealer and utility relationship, and other forms of enterprise that the industry should consider, in order to better enable it to achieve its legitimate market.

GUM PROTECTIVE DEVICES FOR GAS APPLIANCES

(Continued from page 294)

mensions become more significant when compared to the small openings of gas ways in automatic pilots and needle valves.

Assuming the opening around a needle adjustment passing 0.2 cubic foot of gas an hour to be truly concentric, its width has been calculated as 0.00028 in. Where these needles are off-center, their openings may vary from zero to 0.00056 in. It is possible therefore that a portion of the needle valve opening is no wider than the diameter of some of the gum particles, whereas, the largest opening is only approximately ten times greater than the diameter of the largest particles.

It is to be expected therefore that gum particles would lodge in these small openings and ultimately close them completely.

To illustrate the small amount of gum required to cause complete closure of a Rutz needle valve, Figure 4 is presented. The top and side views of the same needle before and after complete closure with gum clearly indicate that the needle was off-center and that the depth and width of the deposit is very small.

Life Tests Undertake

Having established the fact, that gas containing gum in controlled quantities and of a given particle size and number could be generated continuously, that the test could be accelerated to permit a reasonable time for complete closure of small filters under conditions similar to those existing in service, and that the results of filter tests would be directly applicable to field conditions regardless of chemical composition of the gum, life tests to determine the effectiveness of the various gum protective devices for removing gum were undertaken.

All filters were installed on the test manifold with needle valve pilot attached at their outlets as shown in Figure 1. Some contained fixed orifices and therefore did not employ a needle valve. After adjusting the gas rate on each pilot to 0.25 cubic foot per hour, gas containing a known nitric oxide concentration and having a clogging rate of one-half to two hours average 1.2 hours for unprotected Rutz lighters was supplied. All pilots were then operated continuously for several months until gum deposits completely closed their attached needle valves or each device itself became clogged. In this manner, life-service expectancy of each unit was determined. In addition, periodic determinations of pressure drop through each unit were made for the purpose of measuring their reduced filtering capacities.

A second method of test employed to determine effectiveness of gum protective devices at periodic intervals was also conducted. Samples of gas taken from the outlets of each filter on the test manifold were observed in the Tyndall beam tester. Where gum particles were visible, it was apparent that

they were not being removed and would ultimately cause closure of the pilot.

Results obtained to date are graphically summarized in Figure 5. It will be readily apparent that there is a wide variation in the degree of protection afforded by these various units. Filters A, C, F and G have the longest effectiveness, providing protection for a period corresponding to 1031 Rutz lighter stoppages; filter K, 200 Rutz outages; and type M devices, 60 stoppages. Filters I, J and L permitted pilots to become clogged in the same time as the unprotected control pilot and therefore did not remove gum. As this last group was designed primarily for dust particle removal, their failure to remove gum is not an accurate measure of their usefulness to remove large entrained dust particles. Tests on filters B, D, E and H, which are designed for larger gas flows, have not yet been completed and therefore are not included in Figure 5.

Units Closest to Ideal

Obviously the most satisfactory pilot protective device for eliminating service difficulties from vapor-phase gum would be one which would prevent gum particles from passing through it or from being retained in small gas ways, and yet continue to function without an appreciable decrease in its effectiveness for an indefinite length of time. Closest approach to this ideal is attained by filters A, C, F and G.

It is interesting to note that these units are practically identical in construction and contain the same specially treated mineral wool filtering material. In all probability, the mesh formed by the fibers are so fine, the diameter of certain fibres are so small, and the fitting of parts so accurate that nearly all gum particles which would otherwise be deposited are prevented from passing through the filter. This theory is supported by the fact that no gum particles were found on needle valves, even after the units themselves had become closed with gum.

Exterior and interior views of units of this type are shown in Figure 6. The device shown was taken apart after it had been clogged in a period corresponding to 1031 Rutz lighter outages. It may be seen from the color and text-

ure of the filtering material that there is an abundance of gum at the inlet (right) end. This dark color extends a short distance into the mineral wool, although the outlet end (left) has not changed in color. This further indicates that no gum has passed through the device.

Another type of design is represented by filter K in Figure 7. In this filter long strands of commercial glass wool fibers, wrapped around a spring coil, are used as the filtering medium, its density being subject to manual adjustment. For example, two units as secured from the manufacturer had different gas flows; one was adjusted for 1.2 cubic feet per hour, the other 0.8 cubic foot per hour at 0.5 inch water column pressure drop. As indicated by the uneven gum deposits on the glass wool coil, illustrated by dark portions in Figure 7, this construction does not provide uniform distribution of the filtering material. Gum deposits were also formed at the elliptical opening of the B valve, as well as at the pilot tip provided, thus indicating that all gum particles were not collected by the filtering material. Data included in Figure 5 were obtained with the 0.8 cubic foot unit.

Filters I, J and L, designed for dust removal, were not found satisfactory as gum filtering agents (see Figure 5). As pilot stoppages occurred at the same rate as unprotected pilots, it is evident that the formed wool felt pads were not effective. Operating on an entirely different principle, the devices designated as type M are intended to minimize surfaces on which gum particles may be deposited and to maintain as large a passageway for pilot gas as possible. Thin stainless steel plate fixed orifices are used. They are designed for use as pilot burner tips as well as orifice restrictors. When subjected to gas containing gum similar results were obtained with both types of installations. As shown in Figure 5, they withstood the equivalent of 60 outages of unprotected Rutz lighters before becoming completely closed.

A photograph of a thin plate fixed orifice before and after complete closure is presented in Figure 8. These devices designated as M_a and M_b in Figure 5 incorporate B valves. Although instructions received with them

specify that the B valves be employed for servicing purposes only, it is possible that they may be used for adjustment of the gas rate and, therefore, tests were conducted with these valves both open and partially closed. With the B valve line partially closed, stoppage occurred at the elliptical opening between plug and barrel, whereas, it occurred at the orifice when valve was not used. It is interesting to note that complete stoppage with gum occurred in the same time, with or without partial closing of B valve.

Pressure drop determinations were made before tests were started on each unit and periodically thereafter during the course of the tests to obtain an indication of clogging of the filter and its remaining filtering capacity. Data obtained with filter C, which is presented graphically in Figure 9, is also typical for filter A, F and G. For example, with a pressure drop between inlet and outlet of the device of 0.5 inch water column the gas flow was 0.8 cubic foot per hour on the new filter, 0.73 cubic foot after 80 cycles (1 cycle = 1 closure of unprotected Rutz pilot), 0.52 cubic foot after 480 cycles, and only 0.1 cubic foot after 1031 cycles causing complete stoppage.

Average Gas Flow

The average gas flow expressed in percentage of initial capacity of filters A, C, F and G were practically identical. They were calculated and plotted against the corresponding number of times a Rutz lighter would become clogged in the same period of use as shown in Figure 10. This curve might also be considered as representing the life-service expectancy of this type of filter as compared to an unprotected Rutz lighter. If for example a Rutz lighter is clogged in actual service, approximately once every five days, then these filters should provide more than 14 years of protection. Assuming extreme conditions in the field, these filters should provide protection to a constantly burning pilot for 172 days.

To indicate how satisfactory filters of the type represented by A, C, F and G performed in service, pressure drop capacity measurements were made on ten devices of pilot size that had been providing satisfactory performance for periods of one to six years. Capacity of

each unit when new was not available, therefore the degree of closure could not be plotted. The least capacity with 0.5 in. pressure drop of three filters in service more than five years was 0.36 cubic foot per hour, three to four years 0.48 cubic foot, and less than two years 0.62 cubic foot per hour. Rough estimates of the ratio of decreased capacity indicated that half the capacity of the filter was rendered non-effective in approximately $6\frac{2}{3}$ years.

Summarizing, it appears that: (1) there is need for gum protective devices for automatic pilots operating on manufactured gas, (2) contemporary devices are available which will satisfactorily remove gum for many years without need for servicing, (3) requirements and methods of test which will insure acceptable gum protective devices can readily be formulated, and (4) incorporation of such requirements in standards covering gas appliances and accessories and their early application now seems highly desirable.

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Billing Wrinkles

ONE utility company in England proposes to save envelopes by sealing their bills with a very small square of gummed paper. Another company intends to adopt a tuck-in bill form that won't require an envelope.

Coke Plant Summary

COKE Oven Plant Construction and Development in 1942" is the subject of a leaflet just issued by Koppers Company, Engineering and Construction Division. The pamphlet contains 12 pages, 11 photographs, and eight line drawings. The author is W. A. Leech, Jr., of the Koppers Company.

A summary of recent developments in the field of coke plant construction, the pamphlet lists improvements in design, cites certain new processes and gives construction figures for 1942.

Eleven coke plants were built and put into operation by Koppers during 1942. Those still under construction at the end of the year totaled 16. The total coal carbonization capacity of the 27 new plants is 11,661,000 tons per year.

Contributions to War

(From "Our Company and our Business, 1942" Consolidated Edison System)

BY-PRODUCTS of gas manufacture are making a direct contribution to the war effort. Two of the System Companies' gas plants are producing light oils in connection with making gas on a scale that far exceeds any other gas plants in the country. In 1942 the light oils sold contained more than

3,000,000 gallons of toluol—the base of the high explosive, TNT;

3,000,000 gallons of benzol—used in the production of aviation gasoline and of synthetic rubber;

2,000,000 gallons of other refined oils used in the manufacture of strategic chemicals and solvents.

In addition, the System gas plants produced for sale more than 26,000,000 gallons of tars, from which are made many products for the war effort. Included are road binders, medicines, plastics, disinfectants, dyes, etc.

More than 22,000,000 pounds of sulphate of ammonia were produced. This is not only an excellent fertilizer, but now is being used as a base for a fire retarding material.

Mail Addresses of Association

THE Post Office Department has requested that the delivery district number be included in the address of the Association. All mail to Headquarters should, therefore, be addressed: American Gas Association, 420 Lexington Avenue, New York 17, N. Y.; to the Laboratories: American Gas Association Testing Laboratories, 1032 East 62nd Street, Cleveland 14, Ohio and to the Pacific Coast Branch Laboratories, 1425 Grande Vista Ave., Los Angeles 23, Calif.; and to the Association's Washington office: George W. Bean, fuel consultant, Albee Building, Washington 5, D. C.

Personnel Service

SERVICES OFFERED

Industrial Engineer—More than 15 years' experience in plant surveys and sales force advisory engineer for more efficient use of fuel and power. Desire represent manufacturer as agent, financially responsible—could handle liaison work in connection with war contracts or act as sub-contract manager and consultant. N. Y. P. E. (4H). 1460.

Twenty years' experience as sales and new business manager for a manufactured gas system—where electric competition is most severe in the United States. Single and in good health—Can go anywhere. Fifteen years with last employer, who will give best of references. 1462.

Manager available at once, draft exempt. Experience covers all branches of both natural and manufactured gas. Graduate M.E. and registered P.E. 1463.

Technical graduate. Fourteen years in gas utility operation and plant construction. Supervisory experience in all phases of carburized blue gas manufacture, distribution and utilization. Desires connection in gas or associated industry affording real opportunity to apply technical and analytical ability towards definite goal or engineering development. Draft exempt (36). 1464.

Chemist—B.S., desires permanent position with gas utility or manufacturer in Middle Atlantic States. 26 years' analytical experience in laboratories of manufactured gas industry adapting and developing methods for plant control, supervising personnel analyzing raw materials, by-products, and all purchased supplies; above draft age. 1465.

Prepare now for large volume Post-War Construction in new building field. **Architect and builders' contact man**; unusual record with one of the largest Eastern utilities; draft exempt; desires position enabling him to plan, prepare and execute details for adequate, proper piping and installation systems in new and altered buildings. 1466.

POSITIONS OPEN

Wanted—Experienced gas combustion engineer with ingenuity and creative design ability who can conduct experimental and research development on gas heating appliances. Applicant must have thorough knowledge of types of material, controls (both limit and thermostat) burner design, etc. Company located in the South desires to begin immediate development of gas heating devices for postwar program. Give past experience, draft status, age and qualifications, when replying. 0376.

Assistant plant superintendent for plant sending out yearly 1.4 billion of mixed blue and natural gas. Give age, draft status, experience, salary expected, etc. 0377.

Engineer, with experience in warm air and radiator heating fields, having complete knowledge of automatic heating equipment, installation layouts, and ability to analyze and answer service complaints, to work in engineering department of large heating equipment manufacturer. In replying, supply snapshot, state salary expected, draft status, schooling, positions held, etc. People in our company know of this advt. 0378.

Heating engineer, by a large mid-western heating equipment manufacturer. Man must be experienced in designing warm air heating equipment, familiar with automatic control equipment, qualified to supervise warm air installation layout work, direct activities of testing laboratory, and have executive ability to organize and direct activities of other men. In replying, state age, draft status, education, previous positions held, and salary desired. Supply picture. Our personnel know of this advt. 0379.

Gas appliance engineer for designing and developing work. Must be experienced. Location middle west. Give full particulars regarding yourself. Splendid opportunity for the right party. Our organization knows of this advt. 0380.

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